American Aviation

The Independent Voice of American Aeronautics

JANUARY 1, 1943

istortion Works Both Ways

W A. PATTERSON'S dash of cold water • on super air cargo enthusiasts a few eeks ago cannot help but have a wholesome and leavening effect on the whole air cargo picture which is being so much discussed these days. As head of the domestic airline that has done most to pioneer air gress and air freight, his carefully pre- red address in New York cannot be tossed lightly.

Fortnightly Review

Like Mr. Patterson, we want to see a sound, ogressive and constructive growth of air nsportation of goods and people and there no quibbling over the fact that the super- timists have gotten out of hand and need be toned down. Perhaps we can be listed ong the enthusiasts to whom the Patterson eech was directed. In the main, however, e are in agreement with him that the air rgo prospects can easily be distorted, and e time has arrived for some measure of ne rationalization.

Certainly we have the conviction, shared by rrent United Air Lines advertisements owing huge cargo planes being loaded with ucks and heavy cargo, that the airplane is estined to carry a large volume of the world's ods and people. We don't believe such a rospect means that railroads and steamship es are going to be wiped off the map. Nor the airplane likely to reduce the *total* olume of highway trucking, for the flexible uck is a natural complement to the flexible rplane. When Mr. Patterson re-assures rail d steamship interests that the airplane will ot shove them entirely off the face of the obe, he is on sound ground, but one would ave to be a mighty visionary to make any uch prediction in the first place.

We suspect one of the weaknesses of the air rgo enthusiasts is the natural and somewhat evitable proclivity to compare airplane sta- stics with rail and steamship figures. There as to be a measuring stick somewhere, and in aking such comparisons as the airplane vs. e railroad the inference often arises that the r cargo plane is to replace the railroad car. his is just one of the many difficulties of aking statistical comparisons, for figures can e made to prove just about anything. Cer-

(Continued on page 8)

Promises New Offensive

Gen. Arnold Delivers Two Frank Progress Reports on AAF's War and Training Job

(Page 15)

Late Bulletins

NWA-MCA Merger Planned

The name of Mid-Continent Airlines is scheduled to disappear from the list of the nation's air carriers soon. Merger of Northwest Airlines and Mid-Continent has been approved by the directors of both companies, and the official name of the new company will be Northwest Airlines, it is learned. The deal still requires approval of stockholders and of the Civil Aeronautics Board, according to John S. Wynne, chairman of the MCA board.

WPB Airmen Resign

Harold E. Talbott, who has served as director of WPB's Aircraft Production Division, is resigning to reenter private industry, although Charles E. Wilson had requested him to remain as an administrative aide.

Other Aircraft branch or unit officials resigning are H. R. Boyer, Joseph Salzman, Ed Vogelback, Richard Palmer and Russell Hardy.

Trend of The News

Looking Ahead Into '43: As the aircraft industry plunges deeper into the "paper blizzard" of estimates and schedules demanded by Controlled Materials Plan—which won't reach peak efficiency before the fourth quarter of this year—you can expect grumbling aplenty about details and forms from harassed officials, but in lighter moments they will hazard the guess that they can produce 85,000 planes this year, nevertheless. They also surmise OWI's preliminary estimate of 49,000 planes in 1942 was a few thousand too complimentary. Also *Army & Navy Journal's* estimate of "more than 5,000" in November was described as a little on the heavy side.

What About Gliders? Glider enthusiasm is at a new low in Washington. The well publicized initial orders for two, nine and 15-place trainers and transports aggregated five figure totals. Gen. Arnold reports this program is on schedule. But WPB and Army people are vague about the next few months. Industry people look for the number of prime contractors to decrease in favor of the augmented aircraft program.

Shipbuilder Sneaks In: Amidst the hullabaloo over Messrs. Kaiser and Higgins crashing the aircraft industry you should not overlook the enterprising firm of Bechtel-McCone-Parsons Corp. of the West Coast, which is quietly jumping into the field with both feet and will be discovered one of these days by an interpretative newspaper reporter. The firm is building a $12,500,000 modification center in Alabama and another such plant in Utah for the AAF. It will learn all there is to know about aircraft assembly in a year or so. It is the parent company of California Shipbuilding Corp.

More Subcontractors Coming: Washington estimates "hundreds" of plants, large and small, will join the aviation industry as subcontractors in the next six months, many converted from other products.

An elaborate survey of war industry facilities is being rushed by AAF field officers as part of the new CMP. Each prime contractor has been asked by the Materiel Center at Dayton to advise his hundreds or thousands of subcontractors and vendors exactly what he expects of them up to mid-1943. Copies of these requirements will be mailed simultaneously to the Army. Thus, Materiel will know which facilities warrant expansion or discontinuation, or where some subcontracting or purchasing habits must be changed to balance load on all facilities.

Germany, meanwhile, is understood to be using a materials allocation system in reverse to CMP. There, each supplier or subcontractor gets his materials independently and final assembler has few material worries. When a design is made, government expediter-policemen are assigned to the affected parts plants farthest down the line, and follow the new design all the way to final assembly.

Free Plane Inspections Doomed: It's only a matter of time (perhaps only a few days) until the private plane owner will hand over a dollar for printed civil air regulations, booklets and statistics;

(Continued on page 6)

20c

XUM

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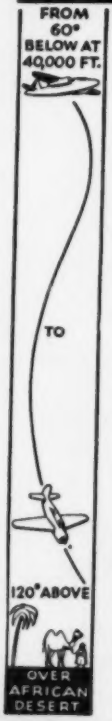

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American Aviation

Vol. 6, No. 15 — January 1, 1

Contents

Arnold Stresses Growing Air Power 1
Gliders Increase Plane Capacity .....
Randolph to Push Training Bill .....
Denver-Kansas City Line Awarded .....
UAL Cancelation Suit Rejected .....
Josh Lee Named to CAB .....
Du Pont Sees Airline Gliders .....
Cargo Design Not Immediate Need .....
Output Can Be Doubled—Girdler .....
First 'Caravan' Nears Completion 4

Departments

Civil	23	Manufacturing	40-5
Editorial	8	Transport	27-37
Equipment News	38-39	War	15-21

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THE RESCUE OF RICKENBACKER

The Date:

November 13, 1942.

The Scene:

A choppy South Pacific sea, 600 miles north of Samoa.

Rescue Plane:

A Vought-Sikorsky "Kingfisher" scout-observation seaplane, equipped with Edo Float gear and piloted by W. F. Eadie, Lt., U.S.N.

Rescued after twenty-one days on a rubber life raft:

Capt. E. V. "Eddie" Rickenbacker, Col. Hans C. Adamson and Pvt. John F. Bartek.

Note:

After the rescue, the heavily overloaded 2-place seaplane withstood the gruelling test of taxiing 5 people to safety through 40 miles of choppy sea.

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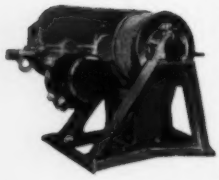

In collaboration with Whiting Collateral Engineering Service, a "vest pocket" hoist to lift the "big ones" was devised. Portable—easily handled by one mechanic—easily stowed away when not in use—it is seeing service on hundreds of bombing planes—another product of American enterprise that is helping win the war.

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Trend of the News

(Continued from page 1)

another dollar to be certificated as a pilot, another to have his pl corded and title filed, still another for certified copies of titles or cates, and $5 for each annual CAA inspection or re-inspection. CAA pay for its services and a bill to this effect passed the House weeks ago and scraped through the Senate the last day of the Session of Congress.

Lighter Than Air Stirring? There are persistent but unveri mors in Washington that 1943 will see crystallization of a dirigible The blimps are making a hit with Navy men. Congress long ago au an appropriation for a new dirigible prototype. Interior Dept. admitted that helium production this year will be expanded subst The cautious but often knowing *New York Times* declaimed editori cently on the wisdom of experimenting with dirigibles for carrying

AAF Public Relations Slash: Secretary Stimson has slashed Arnold's public relations staff again. Three officers remained as th written. Under the sweeping press reorganization of the Army on S AAF's smooth-running public relations unit under Col. Ennis was di but Arnold was allowed to keep a staff of about eight or 10 advisers ing to him rather than to Public Relations. Only Ennis, Col. Westla Lieut. Col. Weeks are left.

Tardy Navy, on the other hand, is beginning to show interest in pu for its Bureau of Aeronautics, and has installed several experienced tion writers headed by Lieut. Robert Winston as aviation assistant to Director of Public Relations. Others are Lieut. Leon Shloss from Chamber and Lieut. Benson Hoy, formerly of *Western Flying*. A day after the new unit was gathered into one room they were transplanted scattered about again. That's Washington.

Resources Control Office: T. P. Wright, formerly deputy direc WPB's Aircraft Production Division, says he has received formal ap of the title of Resources Control Office for his committee which will with and under the big Aircraft Production Board, also on which he His previous nomination for a title was Office of Aircraft Production trol. Wright is held in high favor by Gen. Echols of AAF's Materiel mand, a factor which should be kept in mind in coming months.

Meanwhile, former branch and section chiefs of WPB's once efficient craft Division are scattering to industry or other Federal agencies than join the Army as commissioned officers in the sprawling Pen Building across the Potomac. Plane Czar Wilson will remain in WPB quarters but Wright will move to Pentagon soon, taking probably less 20% of the old Aircraft Division's executive personnel with him.

A 35% Efficiency Award: If you think Tom Girdler's estimate aircraft industry is working at 60% is too low, consider this: One leading heavy-bomber companies received an Army-Navy E Award operating at 35% capacity not so long ago. That won't happen if Contr Materials Plan works.

Washington Sidelights: The Army's Public Relations policy per you to write an article about jet propulsion but won't let you use the pi in an ad . . . Helicopter development is not being neglected by the pow that-be. . . . The first hint Mr. Hitler will have of all of our future p types will be when they smack him right in the battle front. . . . C solidated Aircraft Corp. may take over the uncompleted New Orleans p where Nash-Kelvinator planned to produce Vought-Sikorsky cargo fl boats by the scores. Consolidated builds the B-24, you know . . . S Department is unhappy about many jobs Board of Economic Warfa carrying out, among them BEW's importing of strategic materials in w would otherwise be empty incoming planes of the Air Transport Comm

● There's a proposal to amend the Civil Air Regulations to pe youngsters of 16 to win private pilot certificates. Present minimum ag 18. Looks as though three grades of airline pilot certificates will be set too. . . . As soon as the Bureau of the Budget okays the fiscal 1943 e penses William A. M. Burden will announce his new research Office of Transport Information, now headed by well known J. Parker Van Za who prepared the supplemental data on air transport which accompa the National Resources Planning Board's transportation report rece and earlier surveyed Latin American aviation.

● There's good reason to believe that the "joint statement" issue War-Navy-WPB-OWI defining C. E. Wilson's duties as scheduling was not seen either by Donald Nelson or Wilson until *after* it was rel

—R. H. W.

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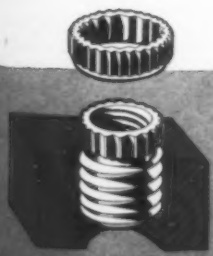


(1) Material has been drilled and tapped. Insert, minus locking ring, has been partly screwed into place.

(2) Insert in place. Top flush with surface of material. Note the counter-bored channel for the locking ring.

(3) Insert locked in place. Inner serrations engaged with teeth of collar. Outer serrations broached permanently into material.

Editorial

(Continued from page 1)

tainly the super-enthusiasts for air cargo which Mr. Patterson set out to chasten have left themselves open for just that.

On the other hand Mr. Patterson's speech strikes us as moving to the other extreme, and falling prey to the same statistical confinement and limitations that he set out to oppose. Perhaps he intentionally went to an extreme. His use of the 1935 *passenger* plane, the DC-3, to prove how impossible it is to replace the railroad between Chicago and San Francisco with *freight* planes, is something like trying to fit a Ford passenger automobile into the highway trucking picture, all of which goes to show that it is easy to distort the picture both ways.

Probably the greatest weakness in any of the discussions of air cargo is the inclination to place an *air transport pattern right smack on top of the existing transportation pattern of the United States.* In our opinion this results in a double fallacy. The *steamship* advanced by leaps and bounds because it permitted man to move out of the restricted orbit of the clippers which were dependent upon trade winds. The lower cost of sailing vessels certainly did not deter the steamship from displacing the sailing ships. The *railroad* permitted movement of goods and people away from the restricted waterways. The *automobile and truck* carried this flexibility even further, while the *airplane* moves in a world unrestricted by barriers and limitations of surface travel.

Fly an airplane directly over a trunk railroad, such as the Union Pacific, and the airplane has the only chief advantage right now of speed. Foreseeable cost reductions in air transportation are such as to indicate a continuing disadvantage to the airplane in hauling of heavy freight on top of trunk railroads. Mr. Patterson's statistical picture of freight transportation between Chicago and San Francisco is quite correct, except that it is a statistician's view of placing the airplane in direct competition with a highly-efficient rail carrier. The future of the airplane does not lie in that pattern any more than the future of the railroad did not lie in *paralleling* inland waterways. It lies beyond the statistician's limitations into the realm of development of new fields and new trade routes.

As Edward P. Warner so aptly pointed out at the SAE air cargo meetings in Chicago, very few areas of the world enjoy real coordinated efficient transportation. The United States and Continental Europe are the *only* major areas where goods and people are transported cheaply and easily by surface means. The low ton-mile rate of American railroads is not due to any cheapness on the part of rail transportation per se, but because the rail network is vast and has tremendous volume. Where the airplane is a real pioneer in air cargo (and there are relatively few examples to date), it is highly unlikely that it will ever be replaced by other means. There are huge areas of the world which will see voluminous transportation by air and virtually none by rail. The highway is different, for the truck, like the airplane, has a magnificent versatility and flexibility and the highway can be used by all who own automotive vehicles.

While on the subject of railroads, it might be worth noting that the low ton-mile cost now enjoyed by domestic shippers is perhaps not the *real* cost evaluation of rail freight. Only a couple of years ago a great many railroads were bankrupt and in receiverships. Any basic cost maintained by profitless corporations cannot be considered genuine economy. Today the railroads are rolling in money, but the war, not peacetime business, is the answer. Route miles of railroads, and railroad rolling stock, have been on the decline for several decades. The post-war trend will likely continue downward. As track miles and rolling stock decrease, is there any assurance whatever that the railroads will be able to maintain their present low ton-mile charges?

As a matter of fact it is not the airplane that is going to affect the railroads so much as U. S. industrial economy. Coal is the main revenue standby of railroading. The trend in the U. S. is toward an enormous expansion of electric power. Coal will move by transmission wires instead of by rail. Reduce the amount of coal hauled by U. S. railroads by twenty or thirty per cent in the ten years following the war, and will the railroads be able to maintain their present low ton-mile charges?

The point is that railroad operating costs, and charges, *are likely to increase* in the years to come as the total volume of bulk shipments, trackage, and rolling stock decrease. True it is that ton-mile costs will have to increase very greatly before the air cargo plane that we will have immediately after the war can meet it on a strictly cost basis. But it may not be so much a matter of airplane costs *reducing* to meet railroad costs, as in narrowing the cost differentials from *both ends.*

Even so, if Mr. Patterson had stopped his speech when he finished talking about freight transportation between Chicago and San Francisco, he would have been on sound ground. But in an effort to show that even when airplane has pioneered, surface transportation will overtake the airp he wandered far afield. For example he said the airplane has pioneered moving chicle out of Yucatan, Mexico, but that now a railroad is u construction and will replace the airplane. Mr. Patterson should know evidently didn't, that the airplane has never been an *important* fact bringing chicle out of Yucatan. It *has* been a factor in Guatemala, how and we submit that the railroad will never replace the airplane in this

Mr. Patterson also referred to the operation of an airline across Andes between Chile and Argentina but said a trans-Andean railroa now being built between these two points which, when completed facilitate the exchange on a volume basis" of products needed in the areas. The Trans-Andine Railroad was built in 1910 and consisted o gauges (narrow gauge 'over the top'), which certainly does not facil freight movements. In 1934 landslides destroyed a considerable portio the route and the road is now slowly being rebuilt. In the meantime sengers (but practically no freight) moves by rail up the mountains then over the hump by automobile, and then only during five months of the year. This railroad never has been, and very likely never will *vital* transportation unit, and as for costs, Mr. Patterson can be well ass that on a ton-mile basis there is little if any comparison with the U Pacific.

The Alaska highway was also mentioned by Mr. Patterson as an il tration of pioneering by the airplane with eventual replacement by su transportation. Just where the railroad fits in here is a little vague certainly the highway to Alaska will develop rapidly as will also the h American highway to South America. But the automobile and truck *natural flexible* complements of the airplane and we hardly think the h way will shove out the airplane in any event. *They operate to each o advantage.* The principle point is that when one gets out of the Un States proper (or even off the established trade routes within the coun the airplane is *not* at the disadvantage in which it is placed bet Chicago and San Francisco, and in many parts of the world it ranks as cheapest, and most expeditious means of transportation of people goods even with airplanes not originally designed for cargo. Particu in South America the railroad has but little future, as any real studen Latin American economy knows.

But beyond the statisticians' realm, and even beyond geography international economy, is an intangible but very important element in as popular fancy or public demand, a highly fluid and unpredictable fa which Mr. Patterson all but completely overlooked. Take your minds to 1910 and recall how the automobile was never going to be worth a as a transportation medium. It was scoffed and laughed at. The cr highways alone was enough to rule it out of serious consideration. the public decided it *wanted* to ride in its own individual vehicles, and public stood the fantastic cost of highways and all of the other cost ments in automobile transportation. The statisticians were licked cleaning. And didn't the same thing happen when railroads threatened land waterways? Cost, again, was no barrier to the development of railroad because the railroad was able to take people and goods to pl not reached by the waterways, or it took people and goods faster than sluggish river and canal boats. Cost is never a real barrier when pe demand is the broad ruling factor. Volume has a way of overcoming costs.

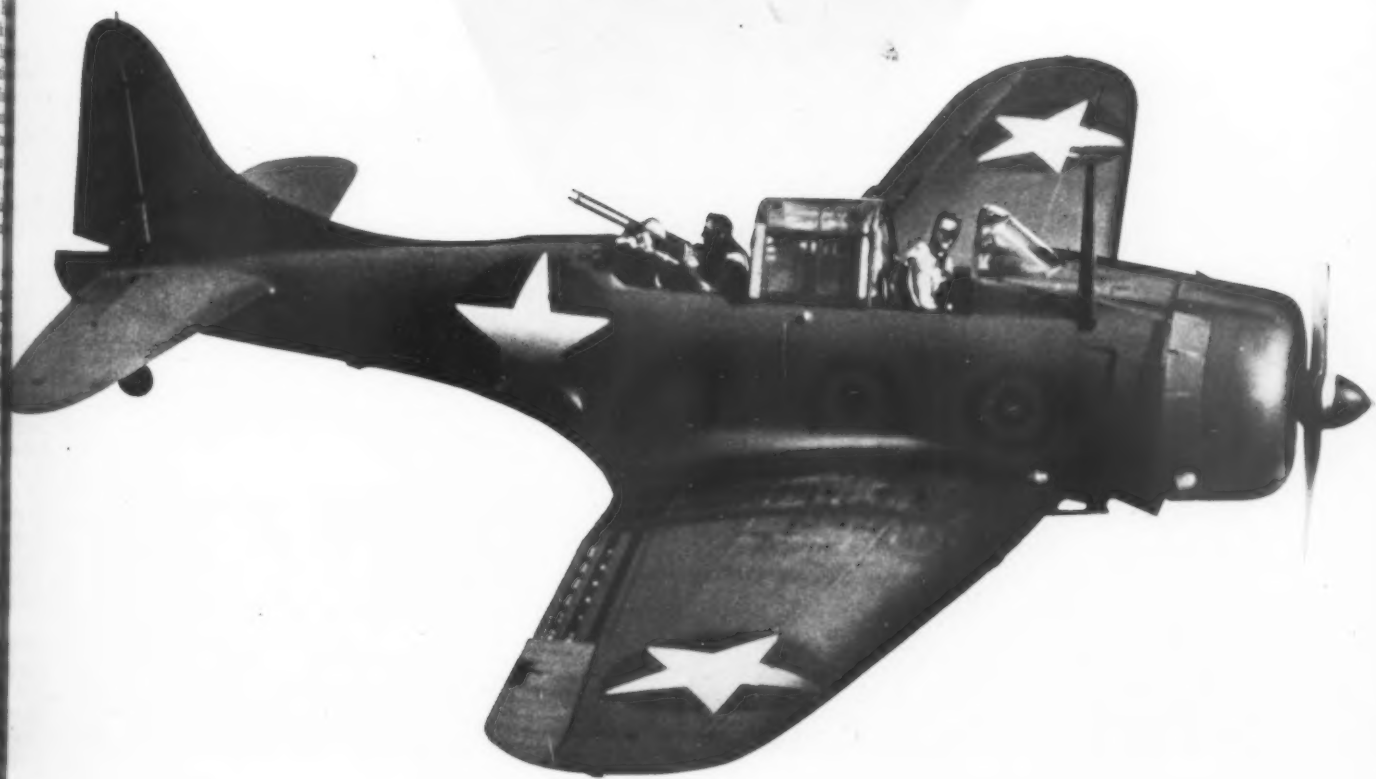
Interest in air cargo is high today. We grant it is a somewhat unhea flury from an economist's viewpoint. We grant that speculators may "burned." But the Army Air Forces will have 2,000,000 men by the en 1943. The nation will have thousands of airplanes suitable for carr people and cargo wherever they want to go. The manufacturing indu will have vast production facilities available. Will all this remain idle w the fighting is over?

The public is thrilled by the new vistas opened up by the air on Judging from the magnitude of interest in the *carrying capacity* of planes among the younger generation (as contrasted to their former inte in mere speed and range), this interest is not likely to disappear. areas of the world not dominated by surface transportation are open development by the airplane, and *the airplane alone.* Somewhere betw the extremes of the super-visionaries, and Mr. Patterson's confined sta ticians' compilation, will be the compromise offering a future for the c mercial airplane. Like the automobile before it, which violated all of economists' axioms in the rule books, the airplane will move tremendously.

DOUGLAS

Dauntless

THE WORLD'S HARDEST HITTING DIVE BOMBER IN U.S. NAVY SERVICE



Douglas

(1) C-54 "Skymaster" (2) C-47 "Skytrain," C-53 "Skytrooper" (3) A-20 "Boston," A-20 "Havoc" (4) SBD "Dauntless," TBD "Devastator," A-24 "Banshee"

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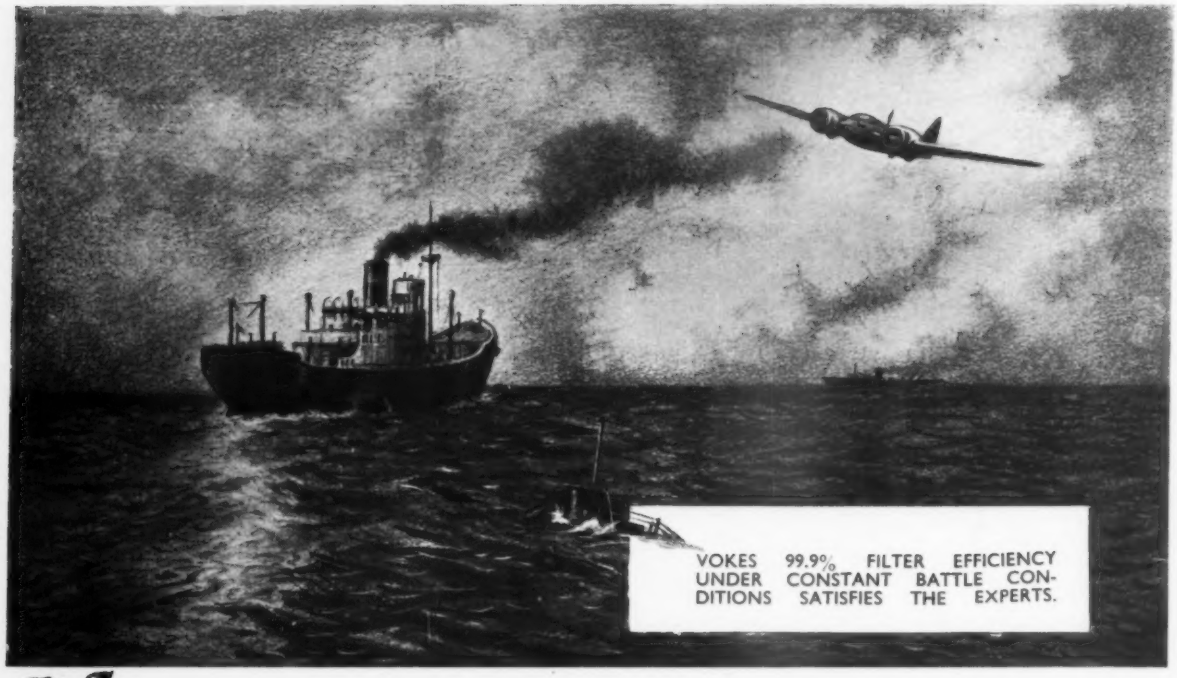

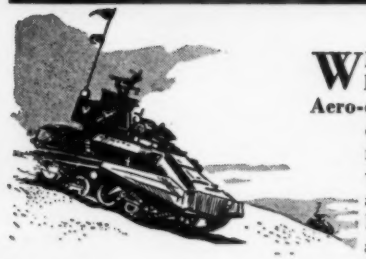

WE hear a lot of " talk " about man power naturally, because it concerns the people. But the engineer experts of the services have their own special problem, engine power. Aero-engines in their thousands, the mighty engines for submarines, auxiliary motor craft and mechanised units of the Army, each and every one has to be kept " fighting fit." That is why the filtration of air, oil and fuel oil to these engines is of such vital importance, because on purity of air, oil and fuel oil for engines depend power and speed. Our organisation is working to capacity to provide Vokes Air, Oil and Fuel Oil Filters to all branches of the services. H.M. and Dominion Governments approve and adopt Vokes Filters. Their 99.9 per cent. standard of filtration efficiency is unvarying, and has been tried and tested out under actual fighting conditions. Like everything connected with the fighting forces, Vokes Filters don't half do the job, but do it thoroughly.

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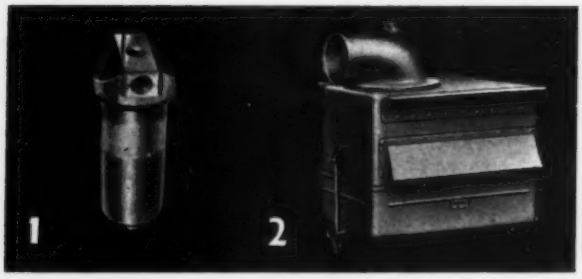

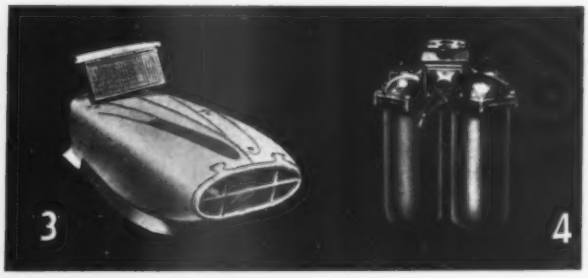

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XUM

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No. 1 OF A SERIES

AT-10 Beechcraft two-engine Transitional Trainers, shown above, serve the Army Air Forces by providing a means of instructing advanced students in the operation of twin-engined aircraft. These airplanes are equipped with all of the devices required for the actual operation of larger tactical two-engine airplanes and thus constitute a logical and easy step upward in the training sequence for Army pilots.

The AT-10's combine a high cruising speed with a very conservative landing speed and excellent flight characteristics. They thus permit their pilots to acquire familiarity with high speed two-engine airplanes without imposing any sudden burden upon recently acquired flying skills.

The use of the AT-10's and other similar airplanes as a step in the training of pilots is only one of the many examples of how the Army Air Forces is providing its future combat pilots with the finest training in the entire world.

Beech Aircraft

CORPORATION

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UP, up, up . . . to 50,000 feet. And hairline accuracy every foot of the way!
The incredibly sensitive diaphragm of this newest Kollsman Sensitive Altimeter expands less than 15 64 of an inch between sea level and a nine-mile ceiling!
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U. S. Builds Overwhelming Air Power

rnold Promises 'errific' Aerial ffensives

By Robert H. Wood

CUTTLING the meaningless phrases common to st high military officials o make public speeches in rtime, Lieut. Gen. H. H. nold, commanding general the Army Air Forces, gave duating classes at Randolph ld, Dec. 13, a bright picture our present and future air ver.

ew weapons, new tactics, new paigns are in the cards and won't be long in appearing, old told the new pilots, navirs and bombardiers who await ir first chance at the enemy.

lthough compelled in our first of warfare to build up a comte fighting machine and strike eight aerial fronts simultanisly, the AAF and its Allies have n gathering tremendous montum which will not attain maxm punch for months.

"We have just begun to fight," n. Arnold said, and already we e landed terrific blows from ich the Axis will never recover. he outspoken address followed only five days another remarke progress report for the past r which Gen. Arnold released a press conference in Washing, but which got disappointing ention in the national press. This lier statement is carried in full ewhere in this issue of Ameri- Aviation.

In one year the Army Air Force proved in combat what it can Hitler had seven years to ld his air force. We had one r to fight and to build ours—l we had to do both simultanusly. Hitler didn't think we ld do it, other people had their ubts too, but we did," Arnold d.

We are building overwhelming power—on schedule. Our nthly airplane production is over 0. Our great expansion pron now under way will double t output.

We will need those extra nes, because this is an aerial r in which one or the other of combatants will be driven from sky,—and it won't be us."

Arnold said from Feb. 1 through Dec. 5 the AAF definitely destroyed 928 enemy planes and probably destroyed 276 in aerial combat. We have lost 130 of our own and 104 are missing. As the result of aerial fighting, the score stands 928 enemy planes knocked out against 234 of ours. The ratio of planes lost is about four to one in our favor.

"After a year of war, we have much to be proud of, yet we have really just begun to fight. We have built airfields all over the world, trained a tremendous number of men, developed a world-wide system of air transports, dealt heavy blows against the Japanese and Italian fleets, carried on successful bombing offensives in all theaters of war. Best of all, we have built up coordinated operations with our Army and Navy to an extent undreamed of heretofore.

And as to the future, we have a 'secret weapon' or two up our aerial sleeves that will deal paralyzing blows to our enemies. Our fighters and bombers are steadily increasing in range, speed, firepower, and bomb loads. Entirely new battle-wagons are on the way. We'll soon put on a special demonstration for Hitler and Hirohito.

"Neither the Germans nor the Japanese have come out of their combats with our Air Force without having to stop for breath and lick their wounds. The terrific destruction wrought by the Flying Fortresses upon the best fighters that Goering could bring to bear against them came as a distinct surprise.

"To date we have had over 1,063 different sorties against the Germans and have lost up to Nov. 30, a total of 32 planes. That total is for our losses by both aircraft and anti-aircraft. During those sorties we have definitely destroyed 293 enemy planes, probably destroyed another 150 and have damaged 192. That is a record unequalled by bombers of any other nation. However, we must not rest on our laurels, for we know it will not be long before the Germans come out with an answer to our Flying Fortresses, and we must be ready for it when it comes.

"For a long time, we had our P-38's in England and tried vainly to get them into a fight to determine just how good they were. The Germans would not close in and fight. Recently, however, the Germans have fought us in the area over Tunis. To date the P-38's have held their own, even though they have had a very difficult task. They have covered and protected the ground troops, and at the same time met the German Messerschmitt 109 and Focke-Wulf 190 fighters. The number shot down has been about even, so we are satisfied, for if we can always shoot down plane for plane with the Germans, it will not be long before we have definite air control, for we can not only produce more planes than they can but we can also turn out more and better combat crews.

"I tell you now that both the German and the Japanese Air Forces are on the down grade. They have passed their peak. We are just approaching our peak in airplane production and combat crew training. Our plane production alone is more than that of the Germans and Japanese combined. However, we have the production of the British and the Russians on our side, too. So despite the long pipe lines which we must keep filled, our enemies are playing a losing game in the air. They are reluctant to meet us in an all-out combat and yet if they do so meet us, it marks the end of their control of the air, even over their own countries."

Answering recent navy criticism of army horizontal bombing accuracy over shipping targets, Arnold said pointedly:

"Now just another thought about this air warfare. Few if any of us have had time to figure out just

(Turn to page 16)

AAF's Chief Says—

THIS is an aerial war in which one of the combatants will be driven from the sky, and it won't be us.

We are building overwhelming air power, on schedule. Our monthly airplane production is over 4,000. Our expansion will double that output.

Today the AAF has over a million officers and men; we will have over 2,000,000 by the end of 1943.

From Feb. 1 through Dec. 15, the AAF definitely destroyed 928 enemy planes and probably destroyed 276 in aerial combat. The score stands 928 enemy planes knocked out against 234 of ours. The ratio is about 4 to 1 in our favor.

We have built up coordinated operations with our Army and Navy to an extent undreamed of heretofore.

We have a secret weapon or two up our aerial sleeves that will deal paralyzing blows to our enemies . . . Entirely new "battle-wagons" are on the way. We'll soon put on a special demonstration for Hitler and Hirohito.

We have had over 1063 sorties against the Germans and have lost up to Nov. 30 a total of 32 planes, from aircraft and anti-aircraft. During those sorties we have definitely destroyed 293 enemy planes, probably destroyed another 150, and damaged 192. That is a record unequalled by bombers of any other nation.

I tell you now that both the German and Japanese air forces are on the downgrade. We are just approaching our peak in production and combat crew training.

Today we have bombers and fighters working in eight combat zones.

I am proud to announce that we were the first air force to develop and use the deadly parachute bombs.

No campaign in this war has been won by a task force not having air superiority.

We hit them first and hit them hard.

Our .50 caliber machine guns have proved themselves to be terrific weapons of aerial destructions, but they will seem like pea-shooters compared with the firepower that we are putting into our newest big ships.

Some time ago I said the B-17 and B-24 were perhaps the last of the "small" bombers. We have new fighters and bombers on the way with tremendously increased speed, firepower, bomb loads, range and maneuverability.

Of all accidents (AAF) only 14% are due to engine or structural failure. Every accident is carefully investigated.

Our flyers are the best in the world. One reason is that we give more hours of actual flying in our training than do others.

what effect our Army Air Force planes have had upon enemy warships and freighters and troopships. This is what we have done: Sunk, 51; believed sunk, 21; hit and damaged, 159.

"Those ships were all types from battleships to destroyers, tankers, cargo ships and troop carriers. They were moving and standing still. Some were in harbors, others in narrow channels and still others out in the high seas hundreds of miles from shore, but *regardless of where they were our bombers have found them, hit them and sunk a large percentage of them.*

"On land we have dropped millions of pounds of explosives. The results have been devastating.

8 Combat Zones

"Today we have our bombers and fighters working in eight combat zones. Each day that passes sees our numbers increase and our striking power building up. Within a few months the Germans, the Italians will be feeling the impact of these hundreds of planes dropping their bombs, not on one or two nights a week but every day and night in the week.

"When that time comes we will hit their submarines. We will hit their transportation facilities, their industries, their munitions plants, their airplane and tank factories. Hundreds of thousands of their people will have to move from ruined cities to other localities. They will realize what a true war of today means. Such is the fate that will come to both Germany and to Japan.

"This combat story is now revealed for the first time:

"Recently, in the Southwest Pacific, A-20 light bombers and B-26 medium bombers attacked Japanese anti-aircraft positions at Soputa. Our planes roared in at an altitude of 75 feet, barely skimming the tree tops. The Jap anti-aircraft guns were hidden in among those trees but that didn't stop our pilots from dropping their parachute bombs with deadly effect. Parachute bombs, as you know, are terrifying things. They take more time to hit the ground, but all of the fragments are thrown into the air when they burst—few are buried in the ground. Our planes flying only 75 feet above the ground were able to drop these bombs with pinpoint accuracy—and get away in good time before they exploded. I am proud to announce that we were the first air force to develop and use this deadly war weapon.

World's Safest

"The records of the past year show that flying in the Army Air Forces is the safest military flying in any of the world's air forces. Please remember that there are several thousand planes in the air at all times here in the U. S. Some time ago it was recommended that reports of accidents be restricted. I said. 'No, the surest way to destroy parents' confidence and to give the enemy a chance to start a lot of rumors is to restrict such news. We will announce every accident.'

"In no other nation does the average young man have the natural ability and temperament so essential to aviation students. The quality of American airplanes, too, has helped. Of all accidents, only 14 per cent are due to engine or structural failure. Every accident is carefully investigated.

"Our flyers are the best in the world.

"One reason is: We give more hours of actual flying in our training than do others. Our pilots now get over 250 hours in school with another 200 in our Operational training units before reaching the combat theaters. In the last war the average was 90 hours before going into combat. Eddie Rickenbacker, our ace of aces, had but 35.

"In the Pacific Theater Japanese pilots show more and more reluctance to attack Flying Fortresses at close range.

"In the Southwest Pacific the long range bomber can execute missions from bases so far removed from Japanese forces that no attacks can be made upon our bases by the Japanese except from aircraft carriers. Japanese carriers are now limited in number due to the losses in battle. They cannot now be employed against us, without coming into striking range of our land-based aircraft.

'Short But Sweet'

"Now a bit of what our men in China are doing: Just a message from General Bissel—short but sweet—10 B-25s and 23 P-40s attacked Canton—one 8,000 and one 6,000 ton ship sunk in channel, 100 loaded lighters sunk or turned over, docks set afire, 2 airdromes strafed, 20 enemy aircraft shot down and an unknown number destroyed on airdromes—no losses. What a day for his men!

"May I point out here that: No campaign in this war has been won by a task force not having air superiority.

"In Libya our heavy bombers blasted Axis-held ports in Africa, Italy, Sicily, Greece and Crete and on many occasions sank—burned or damaged battleships—cruisers and transports in the Mediterranean. Our medium bombers destroyed enemy ammunition dumps and supply lines. Our Air Support units softened up the enemy in Libya itself.

"We hit them first and hit them hard.

Work With RAF

"Our airmen are working side by side with the Royal Air Force on many fronts. We are carrying out our missions as a team. All working from the same fields and using the same repair facilities and housing. It is a very gratifying condition. Only by such cooperation are we able to secure the maximum effectiveness out of our equipment and personnel.

"During the past twelve months our research engineering program has been vastly accelerated. I cannot reveal the most gratifying developments. However:

"(1) Our .50 caliber machine guns have proved themselves to be terrific weapons of aerial destruction. They are one of the outstanding successes of the war, in which Americans can take just pride.

"But listen to this: Our highly destructive .50 caliber machine guns will seem like peashooters, compared with the firepower that we are putting into our newest big ships.

British Press Service.

The Morning After: Tunis Airdrome, Nov. 12, 1942. This photo, just received in the U. S., shows the field after RAF Beaufighters had attacked it on the night of Nov. 11. Top center is a burnt-out French Leo 45. To the right of it are three German JU52 troop-carriers, and at lower left is an Italian SM81. The smaller aircraft are German ME109Fs.

Lightning Strikes: The Lock... P-38 fighter is also being used in A... as a medium bomber, ground ... tank destroyer and convoy ... bombers. The company states that ... P-38 "will climb faster than any ... ship, and even without its drop ... gas tanks has the longest range ... fighter in the world."

"(2) We have steadily improv... our standard models of fighters ... bombers.

"(3) Some time ago I said ... the B-17 and the B-24 were pe... the last of the 'small' bombers ... have new fighters and bombers ... the way with tremendously ... creased speed, firepower, b... loads, range, and maneuverabili...

"(4) Our glider program is ... ceeding on schedule.

"(5) Our newest transports ... carry more freight and more ...

"(6) Our newest motors, both ... cooled and liquid cooled, have ... vastly stepped up in horsepow...

"(7) Photographic reconnaissa... on our combat fronts is increa... in effectiveness due to new de... opments in cameras, and pla... graphic technique. Our pu... planes can take good pictures at ... miles an hour, from 30,000 ... accurately enough to show up ... dividual railroad ties.

"We have passed the Axis ... many research developments, ... we shall not be satisfied until ... leave them far behind in all ... them."

New Crepe Paper Supply Chute

"An answer to the need for dr... ping air-borne supplies quickly ... safely," is claimed by Dennis ... Manufacturing Co., Framingh... Mass., in announcing its emerge... supply parachute.

Exhaustive field tests show it ... "satisfactory in speed, accuracy ... strength." It opens in from one ... three seconds after release and ... designed for minimum drift, p... mitting accurate descent from ... altitudes.

The chute is designed to carry ... lbs. and tests made under favora... conditions prove that up to 50 ... can safely be carried. The tests ... showed that the same chute can ... used repeatedly to drop bundles ... varying weights and sizes.

frican Action Brings All-Out Air War Nearer, Arnold Says

FOR THE first time we have a completely bal- ed air team in action," and of the impending clashes h the Axis over North ica will come "the all-out battles that must come to r the Germans from the ," Lieut. Gen. H. H. Arnold, nounced in a progress re- rt of the Army Air Forces' st year of combat which cul- nated in the North African ensive.

n releasing previously restricted a on the air war, Gen. Arnold d newspapermen in a press con- ence Dec. 8 that the AAF now is ining an average of 3,000 men a nth in pre-flight courses and duating pilots at the rate of 00 a year. Mechanics are being ned out at the rate of 100,000 nually and this will be stepped by late spring to a 300,000 rate.

t requires a year to train an AAF n to go overseas, Arnold said, en months of training, one of ining the unit, and three months work as a unit, with another nth for transportation and tran- ion.

Over Million Mark

The AAF passed the million-man rk about Nov. 1. During the seven months of this year the Forces flew 45% more hours n were flown in the entire period m 1930 to 1940, with 15% fewer idents in proportion, Arnold said. Arnold's prepared statement fol- w:

During the past year the Army Air ces have gained at least equality in ry theater except North Africa and ve assumed the offensive everywhere. the time being there the Germans feverishly endeavoring to build up superiority before we can gather our ength. At present it is touch and as to who is the stronger. In some tions we are, in others they are.

Our transformation from weakness to ength came as the result of the alty and zeal of men and women on production lines. It is also evidence the soundness and scope of our Air ces expansion program—and the iency of our recruiting and train- agencies.

What is more, we have built up the best sort of cooperation between our ed services, air, ground and sea, d between ourselves and our Allies. do not think that in the whole his- y of warfare you can find any finer mple of coordination than that be- een the British Royal Air Force, Navy d Army and our Army, Air Forces, d Navy in the North African cam- gn.

For the first time we have a completely anced air team in action. And, for first time, we are up against a real, st-class air power. We have had th up against the Germans and alians in the Egyptian theater and we ve had bombers and fighters up ainst the Germans in France and the therlands. We have met the Jap es—singly and in swarms—but in rica we are up against the whole ss-section of the German aerial might I can tell you we are looking for- rd to the results with great interest for we believe that out of this will come the all-out air battles that must come to clear the Germans from the sky. If they meet us plane for plane the mass of the German aerial armada must meet the R.A.F. and our Air Force under Doolittle. Once they are committed we hope that it will be a fight leading to the extermination of the aerial hosts of Goering.

Meeting Nazis

As our ground forces for the first time have met German tanks and infantry in full battle, so have we of the Army Air Forces met the full range of German air power. They are sending into action their best and latest combat planes, among them the Focke-Wulf 190s and the Messerschmitt 109-Gs. We are proving our ability to meet these planes with our 38s and the British Spitfires, and are confident that we can beat them on their own grounds.

The American people judge the worth of any action by its results; it is right they should do so. I should like to indicate to you a few of the results of our arming and training.

The North African operations involved coordinated air operations originating 3000 miles apart, from the United States on the one hand and England on the other—operations carried on over a greater distance than any of the kind in the annals of warfare.

Some of these air missions were assigned to the British Royal Air Force. Others were assigned to the Army Air Forces. Air units from the United States and from England, moved by ship and air, were welded in the heat of battle into a composite whole as the result of the magnificent advance coordination and tactical timing.

So bombers and fighters of all types, arriving from far distant widely separated points, joined under fire in combat operations which depended for success upon perfect timing. One of the most remarkable examples of careful planning and tedious training was the arrival in the battle of parachute troops flown non-stop from bases approximately 1,500 miles away in the United Kingdom. No parachute attack in history had been made over more than a fraction of this great distance. The dropping of troops had to be timed to the minute with the attacks made by bombers and fighters. Some of these planes, incidentally, had arrived but a short time before from America. The paratroopers began bailing out while combat planes were completing the job of clearing the skies and neutralizing ground opposition in the target areas.

Such precision on the battlefield is not always expected of even veteran troops. Yet for many of these men this was their first action. The precision with which the paratroops were delivered at an exact spot on a battlefield many hundreds of miles away at the exact time necessary for success is a credit to one of our newest Air Force organizations, the Troop Carrier Command and to the Parachute battalions. You will hear more and more of these organizations as we get deeper into this war.

Precision Operation

We expected and received similar precision of operation from other Air Forces units, from the greenest mechanic to the tail gunner of our last bomber and from the pilot of the smallest fighter to the navigator and bombardier of the largest bomber.

The scope and thoroughness of Air Forces training is indicated by the fact that we had to set up airdromes in a strange and distant land and to set up servicing and repair depots for altering equipment to meet extreme conditions of weather and terrain in a highly specialized theater.

Ever since August last we have had our P-38s in England. We have anxiously awaited reports of their effectiveness but for one reason or another the German fighters would not close for a fight although we gave them many opportunities. In this theater they have not been able to ignore our challenge and the P-38 now has its chance to prove its worth in combat. On Nov. 22-23, P-38s, Lockheed Lightning two-engined fighters, operating over the Gabes-Sfax area of Tunisia, destroyed 12 Italian troop carrier planes and 3 others, in the air and on the ground. They also destroyed 11 tanks and some enemy motor vehicles. On the 25th P-38s flew reconnaissance missions over Gabes and strafing and bombing missions along the coast roads of Southern Tunis, destroying tanks, armored trucks, motorcycles and other equipment. By the end of the month, P-38s were winning victories over Germany's fastest high-altitude fighters, Focke-Wulf 190s and Messerschmitt 109Gs, diverted into this battle by the Germans to meet the Allied assault. Today the 38s are fighting and fighting hard with the German 109 and 190s and our results show the score to be about even. That is all we can ask for or expect in a campaign such as this when aerial supremacy of the Mediterranean and possibly all Europe is the stake.

The Missing Piece!

Washington Post.

Paratroopers Attack

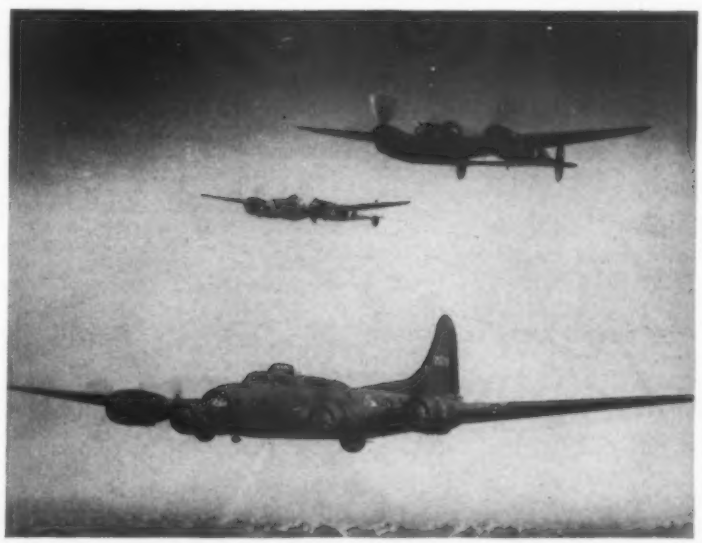
Nov. 29, 44 C-47 transports took off from Maison Blanche carrying British paratroopers to be dropped at an airdrome 35 miles southwest of Tunis. The flight was completed, the drops successfully made and all transports returned safely.

So far in combat, as you all know, our B-17s have had a remarkable record. Here are typical examples of missions. On Oct. 9, 91 of our B-17 Flying Fortresses and 27 of our B-24 Liberators took off from England to bomb warehouses, railway yards and locomotive works at Lille and an airdrome at St. Omer, France, with secondary targets at Coutrai. Twenty-six of the B-17s and 17 B-24s conducted diversion operations or did not reach the targets because of bad weather. The others delivered their attack despite heavy flak and large flights of Nazi fighters. The bombers dropped 161 tons of high explosives and 10 tons of incendiaries on the target areas. Official reports show that the bombers destroyed 25 enemy planes, probably destroyed 38 and damaged 44. Our losses were 3 B-17s and one B-24.

On another mission on Oct. 21, 15 B-17s and 24 B-24s bombed enemy submarine base facilities at Lorient, France. In bad weather, the bombers, without escort, engaged 36 Focke-Wulf 190s, during their 300-mile flight to the target, during the assault and on the way home. They dropped 30 2000-pound bombs and secured many direct hits—verified by photographs. The enemy losses were 9 Focke-Wulf destroyed, 6 probably destroyed and 6 damaged. Despite the highly adverse conditions, we lost only 3 B-17s, while 3 more were damaged.

Similar stories are being told of our bombers around the world. One of the most recent reports before me tells of a raid by 9 B-24s on an oil refinery at Bangkok, Thailand, involving a round trip of considerably more than 2000

(Turn to page 23)



Teamwork Over Tunis: Lockheed P-38 "Lightning" fighters and Boeing B-17 Fortresses are teaming up to strike the Axis at long range in Tunis. "The major difficulty encountered by the Lightnings in trial sweeps as bomber cover has been the refusal of Nazi fighters to come up and fight," according to Lockheed.

AAF Cablegrams Speed Revisions of War Planes

New details on how Army Air Forces utilize combat experience to perfect and change aircraft design were revealed by Maj. Gen. O. P. Echols, chief, Materiel Command, AAF, last month before a subcommittee of Senate Military Affairs Committee.

Engineering representatives of the AAF are continually traveling to the various fronts and conferring with commanding combat officers, he said. When battle tests indicate desirable changes in aircraft performance for specific tasks in a field of operation, the representative cables AAF headquarters. The cable is turned over to the Materiel Requirements Committee for action —and action, Echols stressed, is "immediate". Efforts to obtain the desired change in performance are engineered at Wright Field, and cables sent to the combat commander on developments.

If the change of design worked out at Wright Field is such that it can be incorporated on production lines, notification is sent to the manufacturer. If not, the planes are flown from aircraft plants to AAF Modification Centers which make the desired revision before the planes are flown to operational fields. Over 3,000 aircraft, Echols pointed out, have been improved at Modification Centers at the request of commanders in the fields of operation.

19 Firms to Use Partially Disabled Navy Personnel

From a suggestion made by Lockheed Aircraft Corp. has grown an arrangement whereby Naval men partially disabled in action may be employed by firms manufacturing aircraft and parts, Navy Dept. has announced.

Bureau of Naval Personnel has conducted extensive correspondence with firms agreeing to support the plan. It is felt many of the enlisted men, who have had, or will have, training as aviation machinists and aviation metalsmiths in Navy service schools, will help "meet a very serious man-power problem."

Besides Lockheed, companies participating were listed as: Edward G. Budd Manufacturing Co.; Boeing Airplane Co.; Grumman Aircraft Engineering Corp.; Spartan Aircraft Co.; Beech Aircraft Corp.; GMC's Chevrolet Motor and Axle division; Fairchild Aviation Corp.; Howard Aircraft Corp.; North American Aviation Inc.; Curtiss-Wright Corp.; Boeing Aircraft Co.; Vought-Sikorsky Aircraft; Consolidated Aircraft Corp.; Vega Aircraft Corp.; Douglas Aircraft Co.; Vultee Aircraft, Inc.; The Glenn L. Martin Co. and Piper Aircraft Corp.

Visits Brewster: Rear Admiral John S. McCain, chief of the Navy's bureau of aeronautics, recently visited Brewster Aeronautical Corp's Pennsylvania assembly plant. Shown with him are C. A. Van Dusen, right, Brewster president, and W. A. Bates, left, vice-president in charge of manufacturing.

Army Tests Show Glider Adds 59% To DC-3 Capacity

Tests by the Army Air Forces show a commercially-inefficient 15-place glider towed by the Douglas DC-3 offers a 59% increase of cargo over the towplane on 800-mile flights, Maj. Lewin B. Barringer, pioneer gliding and soaring pilot, reports.

Barringer, now chief of the Glider Unit of the AAF's Directorate of Air Support, told the recent SAE Air Cargo Engineering Meeting in Chicago that "having been in commercial and military aviation enough years to see many new developments succeed in spite of convincing arguments that they could not be done, I believe that we won't really know what we can do with large cargo gliders until we try them."

Maj. Barringer

"With a large glider or air trailer designed specifically for this use and matched in design and wing-loading to a towing transport plane, we can reasonably expect payloads increased over 100% with decrease in general efficiency of operation of the airplane alone of only 10% to 15%," Barringer said.

Describing long-distance ferrying flights by Douglas C-47s (converted DC-3) towing single 15-place troop training gliders of the CG-4A type, Barringer quoted from logs kept by the Douglas pilots.

"We can definitely say that with one 15-place glider in tow, at a cruising speed of 120mph, the engines of these planes are not being abused and will probably stand up as long with a glider in tow as without," he said.

Making clear that neither glider nor towplane is efficient from a commercial point of view in its adapted role to meet military expediency, Barringer said Army experience has shown that with cruising speed reduced approximately 25% and fuel consumption increased 20% for a range of 300 miles, the increase of cargo capacity was 46% over that of the airplane alone, whereas for a range of 500 miles it was 50%, and for 800 miles 59%.

In each case there was carried the maximum fuel load for the particular range, the remainder of the disposable load being made up of cargo.

"When added to these facts we consider the cost of the glider being less than a sixth that of the towplane, some of the possibilities of gliders for transport become apparent."

New transports are on the boards with lower wing loadings for small field operations than the C-47's 28-lbs. per square foot, while new gliders are contemplated with much higher gross wing loadings than that of the CG-4A's 8-plus pounds per square foot, Barringer pointed out.

"When the two loadings meet and we have transports designed to tow gliders as well as gliders designed to be towed by these transports, we will begin to have some of the efficiency we are looking for.

"The whole question of the future use of large cargo-carrying gliders for scheduled air transport is one on which many aeronautical engineers do not agree. Some say that it will be more efficient to design bigger airplanes. Others feel as I do that with properly designed towplanes and gliders used in ranges up to 1,000 miles or so we will be able to transport more cargo by air for less money and at the same time bring a far greater flexibility to commercial air transport than has yet been possible. This flexibility will be due to the use of gliders plus the pick-up developed by All American Aviation, Inc., and described by Dick du Pont, its president and founder.

"This combination will allow us to land as well as launch cargo almost anywhere without stopping or even appreciably slowing the prime mover.

"However, the important question for us now is not whether we can or will carry all our air cargo goes in the future in transport planes or some of it in airplanes plus gliders, but rather—if there is a possibility of substantially increasing our air cargo capacity during this war by towing cargo gliders behind our cargo airplanes we should give the problem close study.

"From what we have already accomplished, from what we are trying out, and from what we are planning for the near future, I best quote the words hanging on my desk: 'Who says it can't be done? It is being done.'"

Navy Transport Line Receiving 4 Engined Ships

Naval Air Transport Service soon take delivery on the ... equivalents of the four-engined Douglas C-54, the four-engined Consolidated Liberators, and ... big twin-engined Curtiss C... mando,—the Navy announces.

NATS, according to the announcement, "is supplying ... farthest-flung outposts with ... needed materials . . . (and) addition, daily flying service ... more than 20 Naval bases ... the continental limits of the United States, the Caribbean, the Canal Zone. Newfoundland and Alaska.

After executive changes, Comdr. C. H. Schildauer, veteran ... pilot and formerly operations manager of the Pacific and Atlantic divisions of Pan American Airways and on the executive staff of Glenn L. Martin, remains as second in commands of NATS. Capt. J. ... Whitney is commanding officer.

NATS equipment "consists of the best transport or patrol planes available, thoroughly tested under all conditions of scheduled flights. Large four-engined flying boats perform the majority of the ocean flights at present. They include fleets of Consolidated PB2Y-3 'Coronados' . . . Boeing 314-Bs . . . and Vought-Sikorsky 'Excaliburs' . . . These aircraft exceed 60,000 lbs. gross weight when loaded and can carry thousands of pounds of payload across the oceans,"—the Navy says.

Besides these types, there are Martin PBM-3 'Mariners'. For overland routes connecting bases within the continent—there are Douglas DC-3's.

CURTISS 4 BLADE

ELECTRIC PROPELLERS

One Man

But He's Fighting on 7 Fronts!

As flight contractors to the Army Air Forces, we are training pilots for Uncle Sam.

Our flying instructors are civilian employees. They are the men on our staff who make it possible for fledgling army pilots to become real combat pilots.

These instructors are skilled in teaching the intricate phases of primary flying. They are respected and appreciated by Air Forces cadets, and many pilots often write back, months and years later, to express appreciation to their first instructors.

Men who train pilots and then see them sent to all parts of the world are almost literally fighting on every battle front. The instructor's skill and knowledge go with the pilot. His heart and spirit are constantly with the boys he trains. He would like to be there with *each* pilot; but his job is here . . . with us . . . and we warmly admire his devotion to duty and his loyalty to the men who are fighting on *all* fronts!

GEORGIA AIR SERVICE

GEORGIA AIR SERVICE, INC.

ATLANTA, GEORGIA

Flight Contractors to U. S. Army Air Forces, Bennettsville, S. C., and Jackson, Tenn.

Lessee-Operator Atlanta-Marietta Airport

Army-Navy Bulletins

Promotions: President Roosevelt has sent to the Senate names of 14 air officers for promotion from the rank of colonel to brigadier general (temporary) according to War Department. They are: John E. Upston; Elwood R. Quesada; Hoyt S. Vandenberg; Edgar E. Glenn; James E. Parker; Lyman P. Whitten; Earle E. Partridge; Ray L. Owens; Early E. W. Duncan; Walter J. Sweet; Clinton W. Howard; Frederick W. Evans and Robert C. Oliver.

Women's Schools: Five aviation training schools for enlisted personnel of the Women's Reserve are scheduled to open about Feb. 1, 1943, according to Army announcement. These schools, located at various parts of the country, will train women to become aviation machinist's mates, aviation metalsmiths, aerographer's mates, parachute riggers and link trainer instructors. Courses will extend from 60 days for the trainer to 21 weeks for aviation machinist's mates and metalsmiths. It is planned to conduct the courses continuously.

Aerial Gunners: War Department discusses a new policy of training all members of AAF bomber crews in aerial gunnery. A new school, the first in flexible gunnery for AAF, has been opened at Laredo, Texas. A sixth school scheduled to open in Kingman, Arizona early in January, 1943. Experiences of bomber crews in combat have led to this development, according to announcement.

New Construction: Awards for construction in connection with AAF installations have been announced by the War Department at Fort Pierce, Fla., and at Dover, Del., each to cost in excess of $1,000,000; also, in connection with installation in Burlington County, N. J., contract to cost about $1,000,000, and at Greensboro, N. C., to cost in excess of $5,000,000. Also disclosed were acquisitions of leases by the AAF of the Clarkson Hotel, Nashville, Tenn., and of the Silverbach Paper Company property, Los Angeles, Cal.

Hotel Purchase: Army is purchasing the Stevens Hotel, Chicago, at a "small fraction of its original cost," according to War Dept. It is said to house 6,000 soldiers of several AAF technical schools.

Photographic Lab.: A new Naval Photographic Science Laboratory will "begin operation soon" at the Naval Air Station, Anacostia, Washington, D. C., Navy Department reveals. Its purpose is to centralize all of the Navy's photographic activities, to set standards for other Naval laboratories, to "check and test aerial . . . cameras . . ." More than 200 enlisted women and 20 officers of the Women's Reserve will be stationed at this new laboratory.

Training Expansion: Adjutant General of the War Dept. announces expansion of facilities for training in basic administration, so that about 1,000 enlisted men of the AAF can be schooled. Additional branches are planned at: South Dakota State College of Agriculture and Mechanic Arts; Louisiana State University (University Station); Arkansas State College (State College); Sam Houston State Teachers College and Atlanta University. Students must have had experience as stenographers, typists and clerks. Courses will last for six weeks.

New Station: Navy Dept. announces Secretary Frank Knox has approved selection of a site for a new Naval Air Station for lighter-than-air purposes at Hitchcock, Texas, near Galveston. Project is estimated to cost about $10,000,000.

War Agencies Review

WAGE STABILIZATION IN THE INDUSTRY seems about to be scheduled for decisive action after the first of the year. Prodded a bit by stories of labor unrest on the Coast because of continued delay, the National War Labor Board recently announced a public hearing date for Jan. 8 in Washington.

At the close of the October conference in Los Angeles, presided over by Paul R. Porter of the War Production Board, management and labor groups were assured of final action before Jan. 1. However delays occurred. Additional time was asked for submission of rebuttals, and Porter's report was rewritten several times. Board spokesmen, when pressed for information, countered with the statement that nothing could be planned until the report was completed and duly considered.

It is understood that Mr. Porter completed his work late in December, having submitted the first part of the report on Dec. 17. Some concern is felt that this will not permit sufficient time prior to the planned hearing date resulting in another possible postponement.

In the meantime, stirred by rumors from Washington, labor groups on the Coast became increasingly restive and at one time even threatened immediate strike action. NWLB Chairman Davis, in identical telegrams to West Coast frame companies and unions asked them to be patient and appealed to the industry for "cooperation in maintaining peak production" pending the Board's consideration of the wage demands. He assured labor that any adjustments made would be retroactive.

General opinion in Washington as this was written was that Porter's report recommends the establishment of a commission to supervise the job of setting up a uniform system of wage scales covering the 250,000 employes involved.

NWLB panels, considering Curtiss-Wright cases in New Jersey, have recommended to the Board that a wage stabilization program be set up for the industry on the East Coast as well.

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RENEGOTIATION OF WAR CONTRACTS is only beginning, Secretary of War Stimson warns contractors. At Dec. 4, close to 6,000 firms having war contracts had been assigned for renegotiation, most of these companies having aggregate contracts of $1,000,000 or more. Amounts collected so far represent but "a scratch on the surface," he added.

"Price reductions and cash refunds totaling $829,332,800 have resulted from renegotiation of War Dept. contracts during the seven month period from April 28, 1942, to Dec. 1, 1942, and before the end of the year are expected to reach an aggregate of $1,000,000,000.

So far, a relatively small number of War Dept. contractors have come before the War Department Price Adjustment Board. As renegotiation progresses with other contractors, the price adjustments and refunds will be increased substantially over the amount already realized.

"To Dec. 1, cash refunds effected by the War Dept. Price Adjustment Board and the Price Adjustment Sections of the Services of Supply of the Army, and the Materiel Command of Army Air Forces, total $124,220,400. Price reductions effected by the same groups total $705,112,400."

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"VOLUNTARY" JOB FREEZING has been organized in the Detroit area. Presumably based upon the "Baltimore plan" which has alternately been pronounced a success and a failure, the program will attempt to keep over 600,000 workers in their present jobs and eliminate pirating.

Montague A. Clark, Michigan WMC director, told newsmen that an eight-man committee, representing both management and labor, had approved the plan which was explained as being designed "to halt labor pirating by employers and wholesale shifting of workers to higher-paying jobs. Under the agreement, no essential workers in the area will be permitted to change from one job to another without express authorization from the United States Employment Service and no employer will hire a worker from another factory who cannot produce such an authorization.

Study of the order reveals that there is no provision for preventing workers from leaving the area for better paying jobs elsewhere; there is no method by which workers can be shifted from less important to more important jobs, or from one plant to another, except through their wholly voluntary agreement; and there is no method of disciplining or penalizing workers for non-conformance. It permits the worker to switch for higher wages, better working conditions, or "compelling" personal reasons. Employers, on the other hand, are threatened with punitive action for any infraction of the rules through steps that might take away his contract or even his plant.

It was disclosed later that the Detroit plan is to be extended to embrace an additional 440,000 workers throughout Michigan and WMC Administrator McNutt commented: "I think we'll be able to get it in effect all the way along the line." He added that the plan is now being used successfully by several West Coast aircraft plants.

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PRESIDENT'S COMMITTEE ON FAIR EMPLOYMENT PRACTICE has announced that its previous directive to Pittsburgh Plate Glass Co., to re-employ seven Jehovah's Witnesses has been temporarily suspended. Company contended that employes were dismissed because of their inability to get along with other employes, not because of religious convictions.

CONRAD CAMPBELL

Army-Navy Decorations

Purple Heart

(India-China)

Col. John R. Francis, U. S. AAF.

(Southwest Pacific)

Private James Bibb, Marmaduke, Ark.; First Lieutenant James A. Elder, Sunnymead, Cal.; Staff Sergeant Lawton Buchanan, San Bernardino, Cal.; Private First Class Chester A. Lamb, San Francisco, Cal.; Private First Class James E. Martin, San Diego, Cal.; Private First Class Joseph H. Riotte, Wallingford, Conn.; Private Arthur W. Werner, Norwalk, Conn.; Sergeant Edwin L. Albrecht, St. Petersburg, Fla.; Sergeant Wade L. Nelms, Athens, Ga.; First Lieutenant Reuben W. Hager, Genesee, Idaho; Private Frank A. Staab, Ferdinand, Idaho; Private First Class Charles H. Freeman, Canton, Ill.

Also Private Joseph A. Christopher, Chicago, Ill.; Private James S. Kossak, Chicago, Ill.; Private Elmon S. Yargus, Oakland, Ill.; Technical Sergeant Verne T. Debes, Strawberry Point, Iowa; Technical Sergeant Frank Benedict, Pittsburgh, Kan.; Private First Class George L. Jones, London, Ky.; Corporal Claude W. Winkler, Shreveport, La.; Private First Class John L. Preston, Medford, Mass.; Private First Class Maurice E. Stevens, Fairfield, Me.; First Lieutenant Frederick M. Armstrong, Jr., Detroit, Mich.; Private Vernon A. Nelson, Fergus Falls, Minn.; Private James L. Johnson, Louisville, Miss.; Private First Class Franklin B. Cardwell, Billings, Mont.; First Lieutenant James J. Donegan, Paterson, N. J.; Private Benjamin P. Faunce, Riverside, N. J.; Staff Sergeant Alvin Simonds, Batavia, N. Y.; Private First Class Edward Lisiewski, Medina, N. Y.; Corporal John T. McClarnon, Akron, O.; Staff Sergeant Claude F. Wiseman, Oklahoma City, Okla.; Sergeant Howard T. Harper, Turner, Ore.; Private Roy Henricksen, Boring, Ore.

Additional men honored were: Second Lieutenant Batholomeo A. Passananate, Philadelphia, Pa.; Private William L. Reninger, Claysburg, Pa.; Second Lieutenant George B. Berkowitz, Dallas, Tex.; Second Lieutenant Oscar Black, Kilgore, Tex.; Staff Sergeant James G. Brown, Lake Victor, Tex.; Private First Class T. V. Corbett, San Antonio, Tex.; Private First Class G. T. Davis, Simms, Tex.; Private Oscar H. Douglas, Plainview, Tex.; Captain Ross N. Huguet, Rusk, Tex.; Private Cecil H. McDonald, Winters, Tex.; Sergeant Russell Fritz, War, West Va.; Private William W. Mauhar, Black River Falls, Wis. and Corporal Eugene R. Bennick, Gillette, Wyo. All of these men are with the U. S. AAF.

Oak Leaf Cluster

(Southwest Pacific)

Captain Harold N. Chaffin, Fort Smith, Ark.

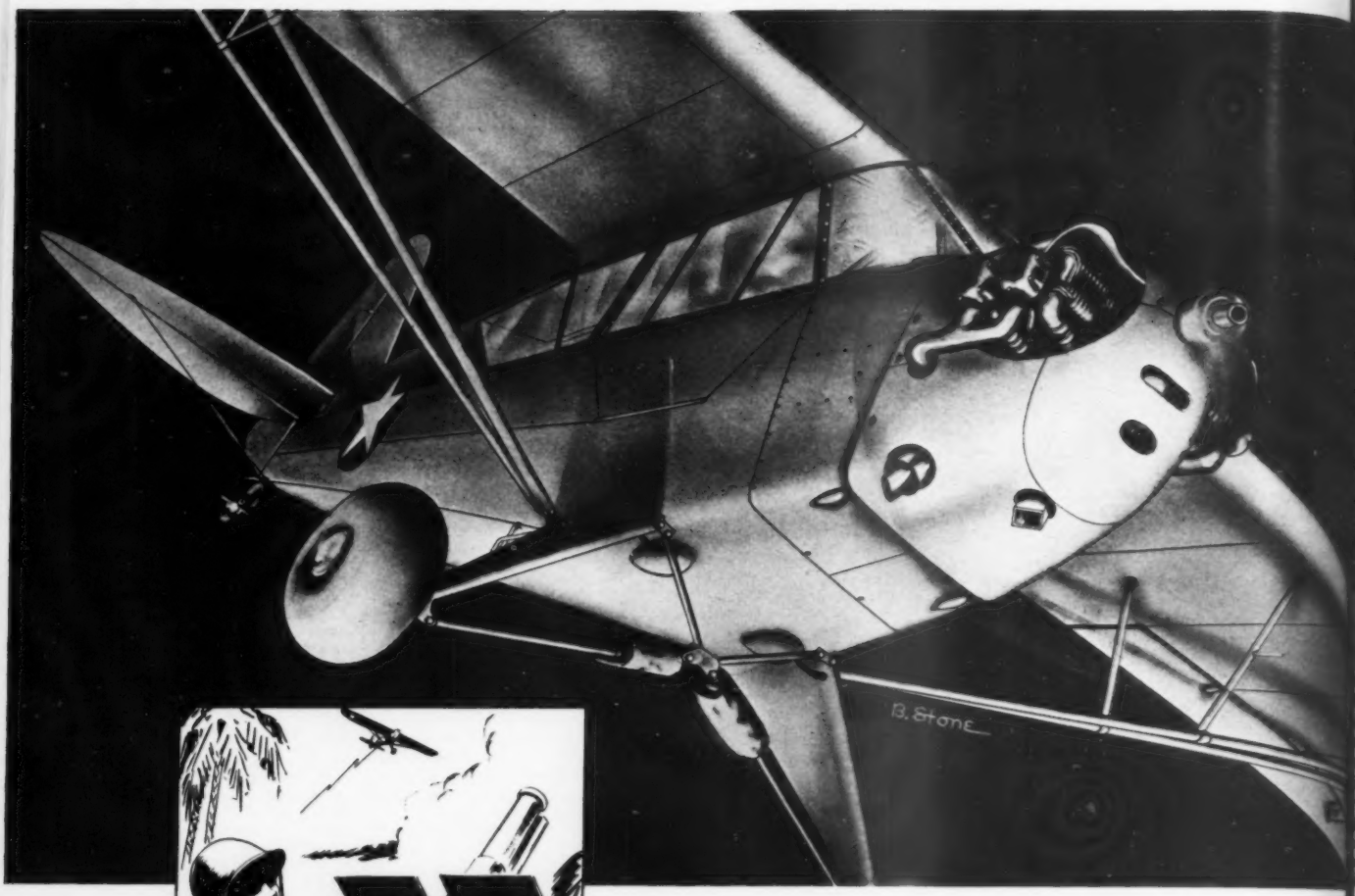
(Willkie Mission)

Major Richard T. Kight, Lubbock, Texas, U. S. AAF.

Air Medal

(Willkie Mission)

Captain Alexis Klotz, San Francisco, Cal.; Captain John C. Wagner, Danville, Pa.; Technical Sergeant Richard J. Barrett, Philadelphia, Pa.; Master Sergeant James M. Cooper, Philadelphia, Pa.; Sergeant Victory P. Minkoff, Blenheim, N. J.; Corporal Charles H. Reynolds, Kansas City, Mo., all of U. S. AAF.



PIPER L-4B

The Versatile Weapon!

This is a war of transportation . . . and the famous Piper Cub airplanes are doing their part to win!

For example, the Piper L-4B shown above, has proved to be a most versatile weapon. Especially built for the Army, it is commonly known as the "Grasshopper." It is now serving Uncle Sam . . . observing and directing artillery fire and troop movements, transporting officer personnel, delivering messages and spotting enemy infiltration.

As time goes on, the uses of this economical, versatile weapon will cover ever-increasing fields. Consider, for instance, the striking power of airborne American Commandos . . . cutting off military objectives, slashing communications, blowing up vital industries, attacking tanks . . . opening the way for all-out invasion! Light airplanes, like the Piper L-4B and the Piper Cruiser can accomplish such missions before the enemy is aware of it.

Their economy of operation, amazing maneuverability and rugged construction perfectly adapt Piper planes for the rigorous and varied parts that they are playing and will play in this great battle for democracy!

The Piper L-4B is another of the famous CUB line.

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNA.

ONE-THIRD OF ALL THE REGISTERED PLANES IN THE U.S. ARE PIPERS

...andolph Pledges Action on High School Training

By KATHERINE JOHNSEN

...Jennings Randolph (D., ...Va.) will initiate and push a ...e in the House to establish a ...eral program of aviation edu...ion in every high school in the ...ntry by September 1943, he ...f AMERICAN AVIATION.

...e will introduce legislation Jan. ... establish a Division of Aviation ...cation in the U.S. Office of ...cation, Federal Security ...ncy. The bill will be referred ... the House Education Committee. ... Graham A. Barden (D., N.C.), ...eduled to take over the chair...ship of the Committee, has al...dy agreed to hold hearings on ... proposal. Former Chairman ...illiam Larrabee was defeated in ... November elections.

"Plenty of witnesses will be ...ed in", Randolph said.

The success of the aviation pro...m in the high schools of the ...strict of Columbia—particularly ... enthusiasm evidenced by stu...nts—has encouraged Randolph to ...t a similar program on a nation...de basis.

"Today we have largely a hit-or-... program of aviation educa...n", Randolph points out. "Some ...tes are performing a splendid ...—but there is, at present, no ...vot point from which a well-...unded uniform program can ...perate".

U.S. Commissioner of Education ... W. Studebaker, who has felt ...r many years that "a more com...rehensive and certainly a much ...under development of aviation ...ducation should be brought ...bout", endorses Randolph's pro...osal which would give his Office ...efinite authorization to establish ... nation-wide program in coopera...on with the Army, Navy and ...AA.

The war is giving tremendous ...petus to the arrival of an air ...e. Studebaker stresses that not ...nly should students be presently ...repared in high schools for mili...ry aviation posts, but, more far ...eaching, the coming generation ...hould be ready to meet the re...uirements of the vast commercial ...viation developments after the ...ar.

Attempts by legislators in the ...ast session of Congress to estab...ish an Aviation Division in the ...U.S. Office of Education failed be...ause of Committee apathy, objec...ions that the Office of Education ...id not need "enabling" legislation ...nd that a program under the Fed...ral government stepped on state's ...ights. Randolph is determined in ...he new Congress to overcome ...Committee apathy. The Office of ...Education explicitly states that it ...wants authorizing legislation. And, ...as far as state's rights are con...erned, aviation observers point ...out that the coordinated Federal ...program would implement the ...viation educational programs in ...states where they exist and would enable other states to have such programs.

Bills to establish a Division of Aviation Education in the U.S. Office of Education were introduced in the 77th Congress by Randolph, Sen. Pat McCarran (D., Nev.) and Rep. William Larrabee (D., Ind.).

Randolph Bill

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby created and established within the United States Office of Education, Federal Security Agency, a Division of Aviation Education, the functions of which shall be as follows:

(a) To promote research in aviation education and to act as a clearing house for research projects;

(b) To formulate and carry out immediate and long-range plans for the promotion of airmindedness through aviation education;

(c) To prepare and disseminate aviation education material;

(d) To confer with and cooperate with governmental and other agencies, including the Army, the Navy, and the Civil Aeronautics Administration, in regard to aviation education;

(e) To secure the cooperation and assistance of various other services of the United States Office of Education in the promotion and carrying on of aviation education: and

(f) To assist the several States and Territories in the setting up of aviation education courses.

Sec. 2. (a) The Commissioner of education is authorized to appoint, subject to the civil-service laws, such officers and employees as are deemed necessary, and to fix their salaries in accordance with the Classification Act of 1923, as amended.

(b) The Commissioner of Education is authorized to make such expenditures as may be necessary for the exercise and performance of the duties and functions provided for by this Act, including expenditures for (1) rent and personal services at the seat of government and elsewhere; (2) travel expenses for officers and employees of the Division of Aviation Education; (3) office furniture, equipment, supplies, newspapers, periodicals, and books of reference; (4) printing and binding; and (5) other related matters.

(c) The Division of Aviation Education shall be a separate division in the U. S. Office of Education under the direct supervision of the Commissioner of Education.

Sec. 3. The Commissioner of Education shall perform the functions assigned to him by this Act under the direction and supervision of the Federal Security Administrator.

Sec. 4. There is hereby authorized to be appropriated for the fiscal year ——— the sum of ——— and annually thereafter such sums as may be necessary to carry out the provisions of this Act.

Civil Air Patrol urges National Service Life insurance for its pilots in a recent report to the Senate Finance Committee. Legislation introduced by Sen. Pepper (D., Fla.) would accomplish this, but the Committee will not act until a favorable report is made by the Veterans Administration.

Arnold

(Continued from page 17)

miles—something of a record even for this war. All returned safely.

A year ago we entered the Pacific war handicapped by lack of equipment. We realized our weakness in this respect and knew it was vitally necessary to use our equipment to the best possible advantage. That we were able to make it count is evidenced by the success of our operations near Midway and in the other war theatres where land based bombers frustrated invasion attempts. Here is some cheerful news tabulated for the first time:

"Army Air Forces bombers during the period Aug. 7-Nov. 18, attacked Japanese naval forces and shipping in the South and Southwest Pacific with the following results: Sunk, 1 heavy cruiser, 2 light cruisers, 1 destroyer, 1 troop transport, 1 cargo transport and 1 gunboat, total, 7; probably sunk, 1 light cruiser, 2 destroyers, 2 cargo transports and 1 unidentified, total, 7; direct hits made on 2 carriers, 1 battleship, 1 battleship or heavy cruiser, 5 heavy cruisers, 7 light cruisers, 1 destroyer, 11 troop transports, 19 cargo transports, 12 unidentified vessels, many of large size, and 2 seaplane tankers or tenders, total 61. This summary includes no credit for near-misses unless damage was clearly observed.

This score is amplified by our continued successes between Nov. 18-30: Sunk, 2 destroyers; probably sunk, 1 destroyer; direct hits, 4 destroyers, 1 troop transport.

The grand total for Army bombers in the Southwest Pacific between Aug. 7 and Nov. 30 is 83 Japanese vessels sunk, probably sunk or certainly hit.

I think, in all humility, that we have given the enemy some surprises during this first year of war. We have permitted him to share the pains of our growing. But still more surprises are in store.

The enemy, Japs and Germans alike, are in a daze because of the fighting power of our B-17s and are still trying to find an answer to it. That plane has knocked down Focke-Wulfs, Messerschmitts and Jap Zeros impartially like falling leaves.

On the fighter side our prospects are quite bright. The 2000-horsepower high altitude P-47 is in production. There is a splendid new model of the Bell P-39 Airacobra in production—an airplane of such radically improved performance as to rank almost as a new airplane. The North American P-51 Mustang is coming along with its new engine. A few days ago, Maj. Tommy Hitchcock returned from London with a report that this Mustang will be the best fighter plane for 1943. That's personal opinion, but it comes from a man who has made a long and careful study of the problem. It's no comfort to our enemies that we have so many good fighters.

In the attack and dive bomber field also much progress has been made. Our light bombers are as versatile and effective as any in the war. They have been given greatly increased horsepower and armament.

We are getting excellent aircraft in all categories. We are getting them in impressive but not satisfactory quantities. I think it can be truly said that we are outproducing all our enemies. Our strength in the air is growing; theirs is decreasing. There is every indication we are now shooting down Japanese aircraft faster than they are building them. Mr. Churchill told you recently that we are combining with the British to do the same thing to the Germans; the Germans have a wasting airpower.

The skies are brighter. We can see daylight on the horizon. We have the planes and the personnel available to counter any move the enemy may make. What is better, we are now undertaking offensive moves of our own.

Of course there will be hard, bitter fighting ahead of us. We will hit difficulties and have many troubles, perhaps temporary setbacks. We cannot slacken any of our efforts; we must, instead, increase our labors all along the line. I am confident that we the American people will not fall down on this, our biggest job. You can be assured that the Army Air Forces will spare no effort, in battle, in training schools or anywhere else until, in the words of our Bombardier Song, "We can see victory ahead."

Celebrate Anniversary: Civil Air Patrol celebrated its first anniversary Dec. 1. Shown here are, left to right, Maj. Moss Patterson, Oklahoma State Wing Commander; Maj. Earle L. Johnson, National Commander, and Keith Kahle, Oklahoma State Executive Officer.

CAA Will Train Communicators and Controllers

To staff its control towers, communications stations, and other aids to safe navigation of military and commercial planes, the Civil Aeronautics Administration is reopening training classes for men and women at its regional offices in New York, Chicago, Atlanta, Kansas City, Fort Worth, Seattle, and Santa Monica.

Applications are now being received through the Civil Service Commission, for Airway and Airport Traffic Controller Trainees, and Aircraft Communicators. Flying experience is not required for these jobs, although preference will be given to applicants with some pilot training.

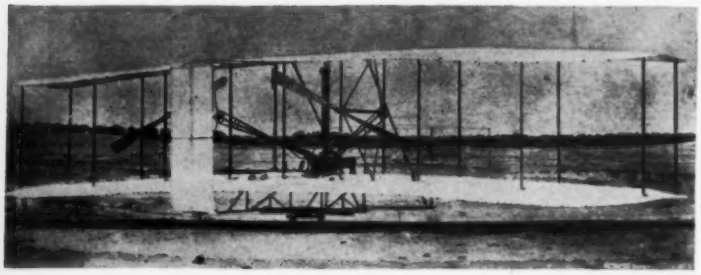
During the course of the year ending June 30, 1943, the CAA expects to train about 1,200 traffic controllers and 1,800 aircraft communicators, to replace men going into the armed services, and to handle the increasing volume of airways traffic.

CPTP Becomes WTS

CPTP (Civilian Pilot Training Program) has now become CAAWTS (CAA War Training Service), and will probably become implanted in the public mind as WTS.

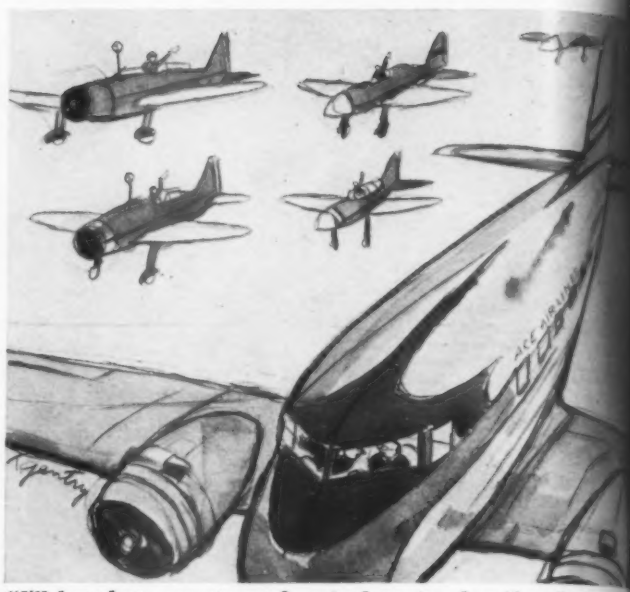
CPTP was in continual distress because of the "civil" part of its official name. Selective Service boards and other agencies, intent on winning the war, often demanded to know why a healthy young man should be allowed to fritter away his time in a "civil" flying school when the Army and Navy needed him. It required lots of explaining to make it clear that CPTP since July 1 has been an all-out war project.

To eliminate the need for this explaining, officials in charge changed the name.



Acme Photo.

39th Anniversary: Shown above is the Wright Brothers' plane at Kitty Hawk, N. C., shortly after it made its first flight on Dec. 17, 1903. On the 39th anniversary of this flight—12 months and 10 days after Pearl Harbor—U. S. warplanes were hitting the Axis in many parts of the world.



"I'll bet that new stewardess is dropping handkerchiefs again."

What Others Say

NEW YORK TIMES—"One of the thrilling chapters of America's part in the war certainly will be the contribution of the airlines under the American flag to a conflict which has become global. It is a story of willing and patriotic sacrifice and of immediate, intelligent and extremely ingenious cooperation with the armed services. Much of its detail must still be veiled; but we know that the domestic airlines are continuing to give speedy service on the great network of airways within continental United States, even though they have surrendered a very large proportion of their air fleets to government use in the transport command. . . . The war effort owes a great debt to the all-out and extremely efficient functioning of an air transport system, built in security, found not wanting in the test of war, and sure to play a vastly extended role in the peace to come."

CHICAGO TRIBUNE—"The rescue of Capt. Rickenbacker and of all but one of the officers and men who had accompanied him on his inspection flight over the southern Pacific is an occasion for national thanksgiving. . . . It is to be hoped that now that he has been restored to us he will be given the responsibilities that he is uniquely fitted to bear. He should be given supervision of our whole aviation program; he should be made the top administrator, with control over procurement, training, and operations of the flying forces of both the Army and the Navy."

SAN ANTONIO EVENING NEWS—"Whether or not airpower can win the struggle, the war-stimulated development of air transport is bound to revolutionize the post-war world. It will have made all the nations neighbors to one another and ended isolationism. Then no medicine, special operating equipment or life-saving device which may be needed in an emergency will be more than 24 hours away from a given point. 'Flying boxcars' will have revolutionized industry, trade and social life."

Government Publications

Of interest to aviation people is a list of pamphlets, issued by the Superintendent of Documents, Government Printing Office, Washington, D. C. These pamphlets, singly or in groups, can be obtained from the Superintendent at that address, by sending check or money order in advance. Coupons with various unit values are also available for those who wish to make frequent purchases.

Aviation and related subjects, with bibliographical information and price, are listed here, as compiled from Superintendent's catalogue No. 40, issued Nov. 1, 1942. General subject heading is included for convenience.

AIR ALMANAC. American Air Almanac, Jan.-Apr. 1943. (1942). 240 pp. Plate. (Nautical Almanac Office). $1.00. N 11.6/3:943/1. The object of this volume is to provide in convenient form the astronomical data required for aerial navigation.

ARMY. Army Regulations 95-10. Army Air Forces: Units and Personnel. July 27, 1942. One p. (War Dept.) 5c. W 1.6/1:95-10.

Army Regulations 95-60. Army Air Forces: Aeronautical Ratings, Flying Officers, Command of Flying Units. Aug. 20, 1942. Two pp. (War Dept.) 5c. W 1.6/1:95-60. Supersedes AR 95-60, June 30, 1942.

Army Regulations 95-90. Army Air Forces: Passengers in Aircraft. July 24, 1942. Five pp. (War Dept.) 5c. W 1.6/1:95-90. Supersedes AR 95-90, May 19, 1941.

Army Regulations 95-150. Army Air Forces: Weather Service. July 24, 1942. Two pp. (War Dept.) 5c. W 1.6/1:95-150. Supersedes AR 95-150, Apr. 14, 1939.

Basic Field Manual 30-27. Regulations for Technical Observers and Service Specialists accompanying U. S. Army Forces in the Field. Sept. 3, 1942. Six pp. (War Dept.) 10c. W 1.33:30-27.

CIVIL AERONAUTICS. Civil Air Regulations: part 26, Air—Traffic Control-Tower Operator Certificates. 1942. Four pp. (Civil Aeronautics Board). 5c. C 31.209:26. Amended to July 1, 1942.

Civil Air Regulations: part 53, Mechanic School Rating, as amended to Aug. 1, 1942. 1942. Three pp. (Civil Aeronautics Board.) 5c. C 31.209:53

POSTERS. Arms and the Women Help with Defense; (Poster). 1942. 40 x 29 inches. (Women's Bureau.) 10c. L 13.9:Ar 5.

More and More Women Work on Aircraft; (Poster). 1942. 40 x 29 inches. (Women's Bureau). 10c. L 13.9:Ai 7.

Aviation and related subjects are listed from catalogue No. 41, Nov. 15, just released, in the same manner

AIRCRAFT PRODUCTION. Transport Aircraft Production, letter from the chairman of the Civil Aeronautics Board, transmitting in further response to Senate Resolution No. 228, a report on transport aircraft production since 1938 and plans for future development of the air-transport industry. 1942. 35 pp. (77th Cong., second session, S. Doc. 206, part two.) 10c. 77-2:S. doc. 206/pt. 2.

Revamped: "Air Force," a slick-paper magazine, is now the official service journal of the U. S. Army Air Forces. It replaces the Air Forces News Letter. Above is the first issue of the new publication.

Obituary

G. B. Turrell

George B. Turrell, 55, coordi... for the Grumman Aircraft ... neering Corp., Bethpage, L. I., ... died Dec. 5 of a heart attack ... riding on a bus in New York. ... was liaison officer between ... Navy and contractors.

•

Brig. Gen. A. J. Lyo...

Brig. Gen. Alfred J. Lyon, ... member of the air staff of Le... Gen. Dwight D. Eisenhower, ... Dec. 1 in Walter Reed Gen... Hospital, Washington, D. C., ... pneumonia following a cold w... he contracted while on an obser... tion flight over enemy territory ... Europe.

In the U. S. Army for 22 y... as a flying officer, Brig. Gen. L... had been assigned to England ... an observer in April, 1941, in c... nection with lend-lease operati... After United States' entrance ... the war, he was active in handl... air materiel for Amerian forces ... the British Isles.

•

Lt. Col. F. M. Ziegler

Lt. Col. Francis M. Ziegler, ... died Dec. 9 from injuries recei... Dec. 2, when his plane crashed ... a routine training flight near ... Wellston Air Depot, Macon, G... where he was stationed as execu... tive officer.

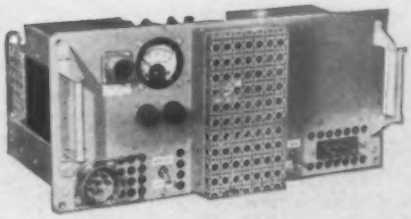
Before being assigned to ... Wellston depot, Col. Ziegler w... attached to the air materiel com... mand at Wright Field, Dayto... Ohio. During his air training, h... was graduated from the Air Corps ... Primary School at Randolph Fie... Texas, in 1928, and from the Air ... Corps Technical School at Chanu... Field, Ill., in 1931.

XUM

'THOUGH he hasn't downed a flock of Jap Zeros —nor led Boeing B-17's on daylight forays over the Nazi-held Continent—he wears his silver wings ***with pride!*** For, they show he's *serving his country*, meritoriously, at Electronic Laboratories—where, for years, a pair of silver wings has symbolized long, faithful, skilled service.

Day in and day out, without fuss or fanfare, he is producing Electronic Power Supplies for Planes, Tanks, Aircraft Carriers, Jeeps, Walkie-Talkies, P-T Boats, and other military equipment! In short, he's *doing his part* to win battles for America, not only in the air, but on land and sea as well! Little wonder he wears his wings with the pride of an air cadet!

Power Supply using rechargeable non-spill storage battery for operation of "Walkie-Talkie" radio equipment. Input Voltage, 4 Volts; Output, Numerous voltages supplying filament and plate requirements of equipment. Width, 3½"; Length, 6½"; Height, 4⅝".



Tough Problem — But Electronic Licked It!

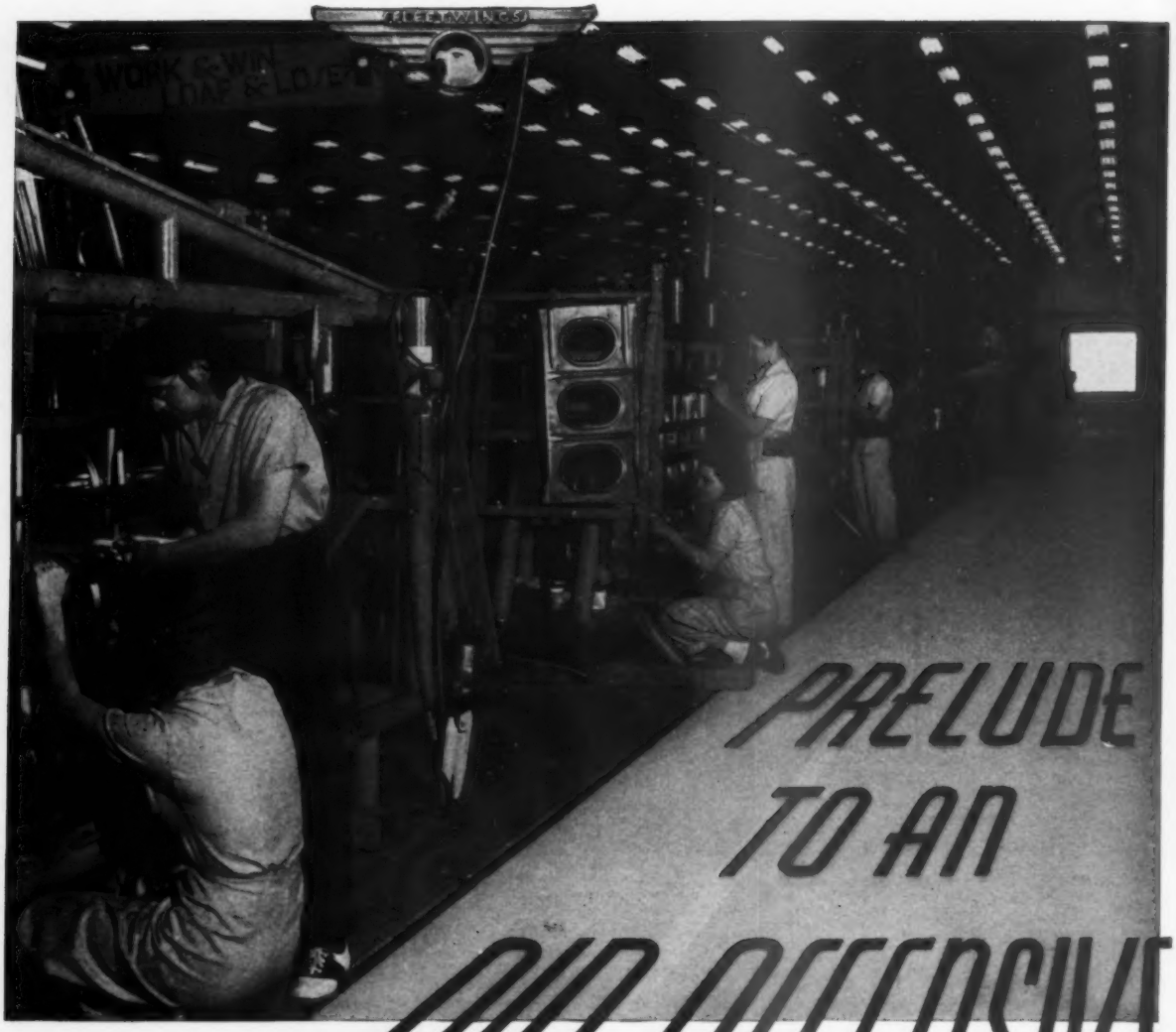
Input: 12 Volts DC or 110 Volts AC.
Output: 2000 Volts, DC at 200 Ma.
450 Volts DC at 70 Ma.
+250 Volts at 30 Ma.
−250 Volts at 25 Ma.
10 Volts AC 7 Amperes.

Approximate output wattage, 500 watts.
Weight 56 lbs. Size: 19"x11"x8".
Efficiency: 65%.
Regulation: 13%
Designed for continuous operation at full load.

*Electronic's Citation for Excellence

Electronic LABORATORIES, INC.

INDIANAPOLIS



PRELUDE TO AN AIR OFFENSIVE

HISTORY-MAKING air offensives begin on the ground—in drafting rooms and on assembly lines like those at Fleetwings' "*attack*" plants.

Here, pioneering engineers and Victory-minded employees are busy designing and building the myriad parts that go into the 'planes of America's air-mada.

Working with stainless steel, with aluminum, with bonded plywoods, they are turning out various types of complete 'planes. They are also serving others by supplying wings, fins, rudders, ailerons, stabilizers, fuselage sections, hydraulic equipment, and other parts.

Realizing, too, that America's air-offensive must never cease, but merely be turned into peacetime channels, Fleetwings already is planning for the changeover. Present plans promise that noteworthy aircraft developments by Fleetwings will continue for a long time to come.

★

FLEETWINGS

BRISTOL • PENNSYLVANIA

FLEETWINGS

pioneers with parts and hydraulic equipment

The BT-12, all-welded basic trainer built for the U. S. Army Air Forces.

STURDY, MANEUVERABLE, *air-worthy!* That best describes the Fleetwings trainer, the *first* all-welded military 'plane constructed principally of stainless steel. The BT-12 will be "air-ancestor" to many bigger and faster 'planes yet unborn.

MANY MEN IN AIRCRAFT know of Fleetwings' ability to "do the impossible" with stainless steel. Not so many know that Fleetwings is also experienced in other alloys, in aluminum, *and even in plywood!* This experience has been both as a prime and as a sub-contractor in producing large-scale quantities.

WOMEN AIRCRAFT ENGINEERS. Women were recently added to Fleetwings' engineering staff—the first in their department. And just as women on Fleetwings' assembly lines have proved there is no "weaker sex," these women engineers are proving that they can contribute vitally to the increasing output of the Fleetwings engineering department.

INFORMATION ABOUT production shortcuts and unusual aircraft developments at Fleetwings is told in a monthly magazine known as "The Fleetwings' Arrow." If you'd like to get a copy of this magazine regularly, merely write us on your company letterhead and tell us so. Send your request to "The Arrow," Fleetwings, Inc., Bristol, Pa. Of course, there's no charge.

"KEEP 'EM FLYING!"

FLEETWINGS

Incorporated

BRISTOL • PENNSYLVANIA

Airline Personnel

In The Services

Edward Eastman Iremonger has been promoted from first lieutenant to captain in the First Air Service Area Command. He was formerly employed as a traffic representative in United's New York office.

Operations

Pan American has assigned the following to Brownsville as student pilots: **Kenneth R. Floro, Samuel B. King, Jack Harvey, Jack M. Blackmore, Charlie C. Driver, Ned Wilson, Bruce B. Wilson, Milton E. Marquardt, Robert J. Morley, Forrest A. Kesseler, William J. Smith, Ralph L. Kuethe and Richard P. Eckert.**

Among Pan American promotions are: **Allen D. Reedy, William L. Thornquist and Samuel H. Miller,** from reserve captains to captains; **Captain R. E. Wanless** to senior pilot, and **Captain James A. Maxwell** to acting assistant chief pilot.

Pan American transfers include: from Brownsville to Pacific division, **Captains Lee Williams, Robert C. Howard, Nathan F. Searles, Lars J. Halvorsen, Clifton V. George and Cornelius K. Dunbar;** from western to Pacific division, **Capt. Lloyd E. Hunt;** from AVIANCA to western division as airport manager at Turbo, **William H. Begg;** from Turbo to Caripito as airport manager, **George E. Brown;** from Caripito to Maracaibo as airport manager, **Reynaldo Munoz;** from Maracaibo to La Guaira as airport manager, **Edward Guerra;** to Brownsville from Atlantic division, **Captains Samuel H. Miller, Allen D. Reedy and William L. Thornquist.**

Ona Ready, Braniff's chief hostess, has begun training at the company's Dallas base for a position as Link Trainer instructor.

C. B. Ragland has been named aircraft radio maintenance supervisor of Pan American's western division at Brownsville. **R. H. Cromwell** is PAA's section technician for the Central American sector, based at Guatemala.

PAA's western division has announced the following promotions from reserve captains to captains: **Robert R. Delareulle, Gordon C. George, William C. Carlton** and **Jack H. Curry.** Promoted from student to junior pilots were **Jack M. Blackmore, Forrest A. Kesseler, George D. Harris, William L. Bay, John C. Yeager, Fred B. Young** and **Jack Harvey.**

Other TWA shifts include: **Earl A. Kelsey,** Indianapolis station manager, named Chicago station manager; **L. C. Cole,** Kansas City passenger agent, moved to Chicago as chief passenger agent, succeeding **Ray Lund,** who goes to Dayton in the same capacity; **Larry R. Geschwind,** Toledo station manager, takes the same post at Indianapolis; **James B. Fennell,** Pittsburgh operations agent, replaces Geschwind.

Edward W. McVitty, Pan American's Atlantic division engineer, has been named assistant manager of the division, and will carry out his new assignments while continuing to serve as division engineer. **John C. Schroeter,** Atlantic division traffic manager, has also been designated as assistant division manager to serve with PAA's new Africa-Orient division, working under **Humphrey W. Toomey,** former eastern division engineer. **Phil S. Delany,** assistant Atlantic division traffic manager, has been promoted to traffic manager.

Miscellaneous

Norris Dean Jackson, former assistant state labor conciliator in Minnesota, has been appointed director of Labor relations for Northwest Airlines.

Six appointments of supervisory capacity in TWA's accounting department are: **Fenton A. Peters** becomes revenue accountant; **T. S. Jones,** disbursements accountant; **Erle M. Constable,** cost and property accountant; **R. V. Anderson,** shop accountant and **E. M. Bowers,** machine accountant. **C. F. Schwaneke** has been assigned special work in connection with a survey of treasury department procedures.

562-Mile Denver-Kansas City Route Awarded to Continental Air Lines

CAB Decision Reverses Report of Examiner

By ERIC BRAMLEY

DENVER to Kansas City, one of the most sought-after routes in the U. S., was awarded to Continental Air Lines on Dec. 10 by the Civil Aeronautics Board.

Stops on the 562-mile route, which will not be opened until national defense requirements permit, will be Topeka and Salina, neither of which now has air service.

According to the Board, the new line, to be known as Air Mail Route 60, will add 562 miles to the 1,401 miles now flown by the company between Denver and El Paso and from Pueblo to Tulsa.

Applications of Braniff, TWA and United for the same route were denied.

In granting the line to Continental, the Board reversed the recommendations of CAB Examiner Francis W. Brown, who had stated that the service should not be established.

Continental's application for Denver-Kansas City has been on file since the day the Civil Aeronautics Authority commenced business in 1938.

Denver and Kansas City are cities of such great importance in the area west of Chicago that direct service between them is logical, the Board's opinion said.

In selecting Continental, the Board said: "The principal questions to be decided here are whether the public interest requires that a carrier be selected which can render one-company service to points beyond the termini Denver and Kansas City, and the effect that the selection of a particular carrier will have upon the other carriers. . . . It is undoubtedly true . . . that the average passenger prefers a one-company service. . . . In ordinary circumstances a one-company competing service will divert more business from other carriers than will a two-company service. Thus, it is to be anticipated, for example, that a greater proportion of the Denver-New York business now carried by United would be diverted if TWA were awarded the route than Continental. . . .

"In the case before us one-company service would be provided between Kansas City and points on United's routes west of Denver if the route were awarded to United, between Denver and points east of Kansas City on route No. 2 if TWA were the successful applicant, and to Burlington and Chicago if Braniff were selected. No one-company service to points beyond the terminals would be effected, of course, by awarding the route to Continental, except for such minor traffic which might flow over route No. 29.

Not Conclusive

The record shows that the principal need for one-carrier service beyond the terminals of the proposed route is between Denver and Chicago, and between Denver and St. Louis. However, one-company service is now being provided between Denver and Chicago by United, and the record indicates that United has been unable to develop the volume of traffic which might be anticipated due to the competition of the excellent rail service provided between these points. Selection of Braniff or TWA would accentuate this difficulty. While one-company service between Denver and St. Louis would be superior to two-company service between those points, this factor is not of such importance as to be conclusive.

Consideration must next be given to the problem of the effect that the selection of one carrier will have upon other carriers. This problem involves broad questions of public interest, not limited to the effect of diversion of existing revenues from the carriers, but involving the fundamental question of the development of an air transportation system adapted to the needs of commerce, the national defense and the postal service.

Efficiency Important

The choice of an appropriate carrier to operate a route depends on the economy and efficiency with which the proposed operation can be undertaken by an applicant as conditioned by the requirements of the development of an economically sound air transportation system. It is not enough that operation by one of two carriers may be somewhat less expensive than operation by the other or that one carrier may be more able to fit the operation into a larger system with greater convenience to the through passenger. These qualifications are important, but they are not final, for if they were the sole consideration, all cases would be decided for large carriers as against small carriers. This is true because large carriers more easily than small can eke out extra mileage with the use of spare equipment, thus on an additional cost basis showing smaller costs for any new operation, or because large carriers are more likely than small to have maintenance stations already set up at points on a proposed operation. In addition, large carriers will have longer routes into which to fit the segment in question and, as a result, some greater convenience to show in any given case.

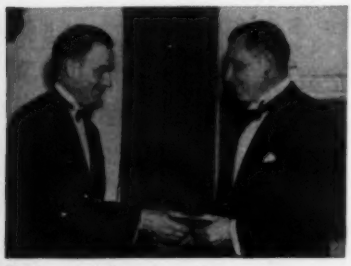
To rely solely on such factors would be in all instances to decide cases on the basis of making the big bigger, throttling forever the growth of the smaller carriers. To prevent such a result, the Civil Aeronautics Act further requires the consideration in this case of the development of sound economic conditions in the industry, and the preservation of "competition to the extent necessary to assure the sound development of an air transportation system properly adapted to the needs of the commerce of the United States."

Will Aid CAL

The award of the route to Continental would strengthen that carrier by providing it with an additional traffic center of importance. It is now faced with the difficulty of developing traffic in a sparsely settled region covering considerable distances and supported by only one large traffic center. An increase in its route and scheduled mileage would enable it to spread its overhead costs over an additional number of miles and passenger revenues, and would aid it in attaining self-sufficiency. Moreover, the extension of Continental service to Kansas City represents one of the best chances Continental will have to extend its service to a large traffic area.

In addition to the selection of Continental for the purpose of strengthening that carrier, other reasons impel us to that choice. In the first place, as we have noted, the choice of Continental will reduce to a minimum the diversion of existing business from other carriers. Both TWA and Braniff should be aided by the connecting business at Kansas City furnished to them by Continental. While United's benefits from connecting business at Denver would probably not be large, it should lose little eastbound traffic from Denver since the new route would involve a two-carrier service [illegible] points east of Kansas City. In addition, although Continental will be competing with its own route No. 43 in operating a direct Denver-Kansas City service, it will be more than compensated by the additional revenues. It should be possible by judicious arranging of schedules to minimize the amount of diversion from route No. 43, whereas, if another carrier operated the direct service, the competition and diversion might be accentuated by the schedules operated.

As we have previously pointed out, the record in this case shows that the primary need is for service between Kansas City and Denver. It is therefore desirable that a local carrier such as Continental be chosen for the purpose of serving these two cities, since that carrier will have a greater interest in developing the local business between route termini. Continental will undoubtedly do so in view of the fact that Denver-Kansas City route will represent its best route from the standpoint of traffic carried. The service can be rendered without the need of giving primary consideration to transcontinental requirements. For example, United is now unable to arrange its connecting service at Omaha for the best possible interests of Denver and Kansas City because of the scheduling problems which face it from San Francisco to New York. Similar problems would beset TWA and Braniff. For the reasons which are set forth above it is our conclusion that Continental should be the carrier selected to perform the service."



PAA Honored: CAB Chairman L. Welch Pogue, left, presents the Arthur Williams Memorial Medal to Juan T. Trippe, president of Pan American Airways. The medal, given by the American Museum of Safety, was awarded to PAA "for pioneer service insuring utmost safety in overseas flight." Presentation was made in Washington on Dec. 8.

Good Advice: Air Express Division of Railway Express Agency is sending this poster to thousands of shippers, urging them to "ship when ready" and thus avoid possible end-of-day overloads on planes.

Truck Company Asks 2 Air Cargo Routes

Denver-Chicago Trucking Co. filed application with CAB for cargo routes from Chicago to Angeles via Omaha, Denver, Lake City and Las Vegas, from Chicago to Seattle via Lake City, Boise, Pendleton Portland.

The company incorporated Nebraska, and headed by Laur Cohen, president, proposes large plastic freight containers LCL shipments with a type of go aircraft yet to be decided. contact and instrument flying contemplated, with overnight ice between terminals mentioned.

The trucking concern owns aircraft at present and acknowledges that it is unable to any at this time. Its headquarters are given as 2501 Blake St., Denver, Colo.

Lankford Appointed Safety Bureau Head

Appointment of Jesse W. Lankford as director of its safety bureau has been announced by the Civil Aeronautics Board. Lankford succeeds Jerome Lederer who resigned to become executive assistant to the director of the Airlines War Training Institute.

In 1927 Lankford was with the aeronautical branch of the Department of Commerce, and was made chief of the safety section in 1929. Later he was appointed assistant chief of the investigation division and in 1941 was appointed chief of the accident analysis section of the CAB. He has been serving as acting director of the safety bureau since Lederer resigned.

The B.F.Goodrich Airplane of the month

LOCKHEED LIGHTNING

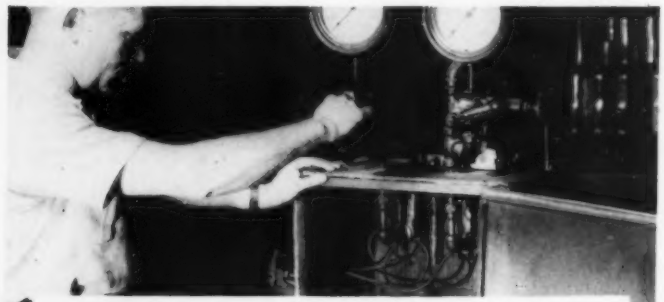
A LEADER IN HIGH SOCIETY! The famous Lockheed P-38, popularly designated as the Lightning. This fighter climbs spectacularly to ward off hostile aircraft *before* they reach their goal. It has already seen service on many fronts. Every day more and more of these ships are rolling off Lockheed production lines for service with the United Nations. The Lightning is extremely maneuverable, has great speed, and an unmatched rate of climb. That's why B. F. Goodrich, manufacturers of Silvertown Airplane Tires and Expander Tube Brakes, nominate the trim P-38 Lightning, designed and built by Lockheed, as "The Plane of the Month."

In war or peace

B.F.Goodrich

FIRST IN RUBBER

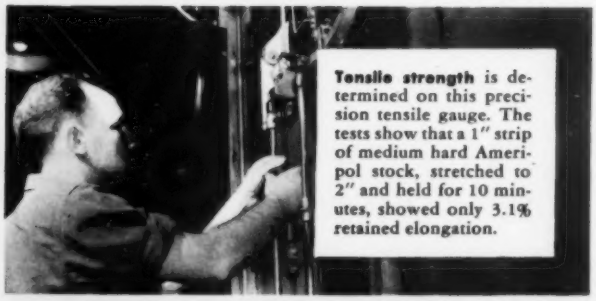
B.F. GOODRICH RUBBER RESEARCH FOR THE *Aviation industry*



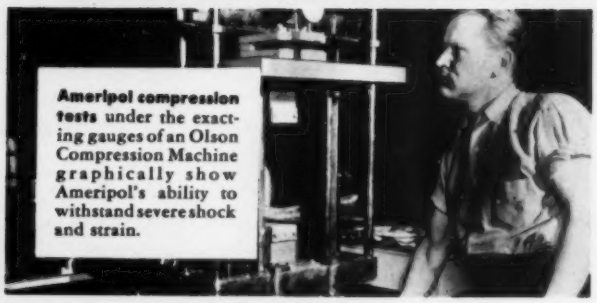
Performance tests which put Ameripol parts through the gruelling strain of hour-after-hour operation are gauged and recorded in the B. F. Goodrich laboratories. They give the same flexing as in actual use. Ameripol parts under tests of 75,000 to 150,000 cycles show no appreciable wear or distortion.

Ameripol reaction when subjected to heat is just as important as its resistance to cold. It is superior to natural rubber in resistance to heat. Compounds designed to provide maximum heat resistance placed in an oven for 3 days, at 212° F., showed decrease in elongation of only 20 to 25%, an increase in tensile strength of 15 to 20%.

AMERIPOL the B. F. Goodrich synthetic rubber, has properties of great importance to aircraft performance!



Tensile strength is determined on this precision tensile gauge. The tests show that a 1" strip of medium hard Ameripol stock, stretched to 2" and held for 10 minutes, showed only 3.1% retained elongation.

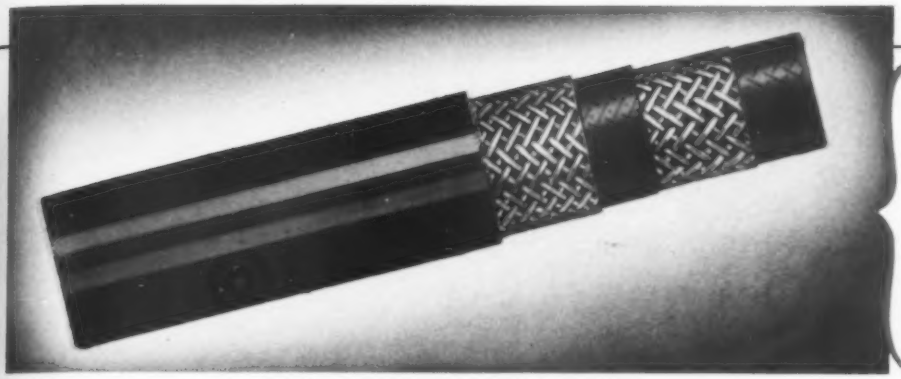


Ameripol compression tests under the exacting gauges of an Olson Compression Machine graphically show Ameripol's ability to withstand severe shock and strain.

Ameripol compound placed in a refrigerated vault and subjected to sub-zero temperature of —50° F. for as long as one week MAINTAINS its NORMAL flexibility. It can be bent to a 180 degree angle around a 3/8" rod while still at—50° F. without checking, cracking or breaking. Actual operation tests at—50° F. by aviation authorities reveal the same results.

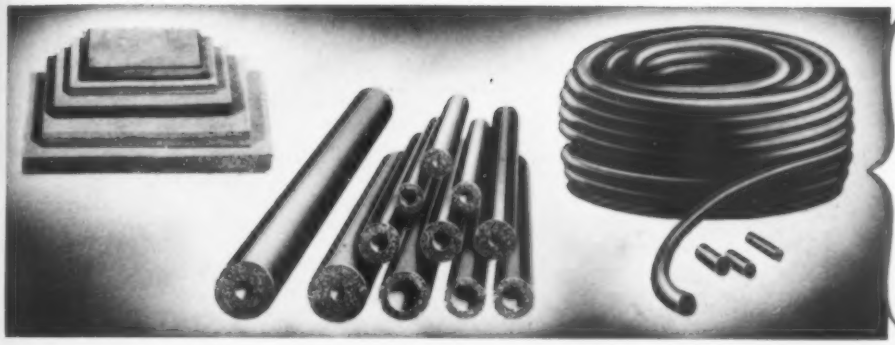
SOME OF THE USES OF

AMERIPOL ON AIRCRAFT!



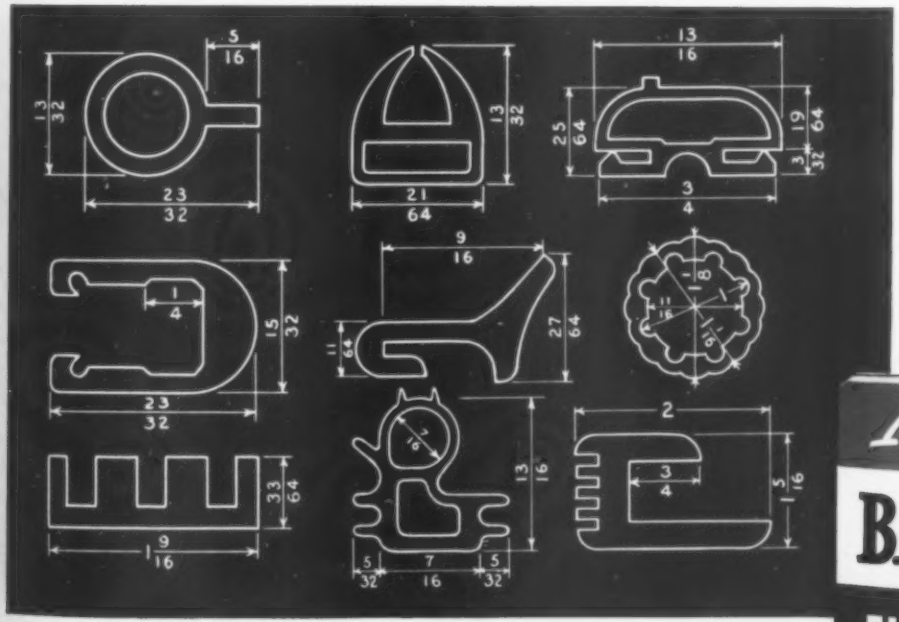
FUEL HOSE

B. F. Goodrich Fuel Hose is made with a synthetic tube and cover, and two braided inserts. The synthetic rubber is gasoline resistant, and prevents peeling and swelling. (Ordinary hose should never be used for gasoline, since gasoline attacks the interior, causing it to crumble and clog the fuel system with small particles of rubber.)



SPONGE PRODUCTS

Sponge Tubing finds its greatest use and is most generally recommended as an insulating material where rigid insulations are hard to apply, are impractical and unsatisfactory. Sponge Cord is used chiefly for Gaskets, Shock Absorbers, Windlace, and various types of Seals. If Sponge Slabs, Tubing or Cord will not satisfactorily serve your purposes, Sponge in special molded shapes can be supplied to meet exact specifications.



HUNDREDS OF EXTRUDED SHAPES AVAILABLE

These cross-section drawings illustrate the complex shapes and designs B. F. Goodrich can produce by the extruding process. We can produce any shape practical by the extruding process up to almost any desired length. For further detail and illustrations of other designs, write for "Rubber Guide Book for American War Industries."

In war or peace

B.F.Goodrich

FIRST IN RUBBER

THE FUTURE OF AVIATION

NO. 6 IN A SERIES
of national advertisements published by the Aeronautical Division of the B. F. Goodrich Company

"Why not take her up for the afternoon and see how she flies!"

YOU'LL FIND yourself browsing around an airplane showroom some day soon. And when you do, you'll have the pleasant task of selecting the right model for your family—sedan or coupe. Like as not, your wife will have definite preference as to color . . . and that, too, will play a big part in "making up *your* mind."

How far away is the day when this will happen?

Only as far as the day of Victory.

Because every airplane manufacturer in America, now producing for Victory, has his eye on the future.

Today, it's trainers and fighters and bombers that are rolling off production lines.

Tomorrow those planes will be designed for you and your family to fly. They'll have trunk racks in place of bomb racks. The little black button that now releases hundreds of bullets a minute will light your cigarette. You'll stow your golf bag in the compartment that used to carry extra fuel.

Nothing surprises the men who've grown up with aviation. Because they've seen the impossible accomplished so many times in so few years. Once it was risky to land because tires were an unknown quantity. Then B. F. Goodrich engineers developed a low pressure airplane tire that made smooth landings and take-offs routine.

Once stopping and turning a plane was as much a matter of luck as it was skill. And then B. F. Goodrich perfected the Expander Tube Brake to give every pilot the utmost in ground control.

Once it was foolhardy to fly through icing conditions. Then came the B. F. Goodrich De-Icer to rid ice just where to get off.

Today, more than 80 aviation products come from the B. F. Goodrich Aeronautical Division. They go to the air forces of the United Nations. But it won't be long before B. F. Goodrich is supplying equipment for the plane you want to buy. Keep that in mind when you take her up for the afternoon to see how she flies.

HERE ARE SOME FAMOUS AMERICAN TRAINING PLANES THAT ARE SUPPLIED WITH B. F. GOODRICH EQUIPMENT

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Skyway or Highway

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Send for your FREE BROCHURE

containing all six in this prophetic campaign which depicts what the aviation industry has in store for America after victory.

B. F. GOODRICH
Aeronautical Division
Akron, Ohio

AL's Air Mail Cancelation Suits Rejected by U. S. Court of Claims

wards $364,423 Compensation r Mail Carried

HE claims of United Air Lines for $2,477,874.47 mages resulting from the ncelation of air mail con- cts in 1934 were rejected by e U. S. Court of Claims on c. 7.

The decision in effect upheld the tion of former Postmaster Gen- l James A. Farley in canceling e domestic air mail contracts at t time.

The Court ruled that the com- nies, United Air Lines Transport rp., Pacific Air Transport and eing Air Transport, should re- ive payment only for mail ac- ally carried before cancelation. his totals $364,423.43, covering the onth of January and the first 19 ys of February, 1934. Payment r this period had been withheld the government.

In his report on the case, issued ly 14, 1941, Court of Claims Com- ssioner Richard Akers had stated at contracts and certificates of the AL companies had not been ob- ined through fraud, collusion or nspiracy. In denying govern- ent counterclaims, the Court greed with this finding.

Claims Agreement

However, in discussing the cele- rated 1930 meetings between Postmaster General Walter Brown nd the airlines (at which time the overnment claimed that the air ail map was divided up), the de- ision said that there had been "a aked agreement to take voluntary eps to prevent competitive bid- ing."

Although the Court was unani- ous in stating that it was proper r Farley to cancel the contracts, he judges disagreed as to where he blame should be placed.

Contrasted with the Court's de- ision—written by Judge J. Warren Madden, appointed to the court two ears ago by President Roosevelt— hich mentioned the "naked agree- ent," Judge Jones, in a separate pinion, said that the airlines had o other choice but to do as Brown aid.

'Dominant Type'

"Postmaster General Brown was ot justified in going to the lengths e did," Jones said. "He was the ominant type. He was struggling t the leash. In his enthusiasm nd determination he went beyond he limits of his authority . . .

"Naturally they (the airlines) ent along. What else could they o?"

Judge Littleton went further and ated that "the suggestion that plaintiffs entered into a combination or agreement and observed it in order to protect their rates is not, in my opinion, supported by the record . . .

"The meeting was open to the public. The publicity representative for the Post Office Department was present and issued a press release at the time. During the period of the conference, the Second Assistant Postmaster General reported to Congress that the conference was being held and minutes were kept of what occurred.

"Intelligent men of the type here involved would hardly follow such a course in connection with an unlawful combination or conspiracy."

Exceeded Authority

Brown, he said, "was a man of strong determination and much interested in aviation and the air mail service. In his zeal to do what he may well have thought was for the best interests of the service he exceeded the authority given him by Congress . . ."

The decision written by Judge Madden said that the agreement of the conferees in the 1930 meetings "to accept extensions as requested by Brown and hand them over to his nominees could, so far as the participants in the conference were concerned, have had no other purpose than to give selected operators the emoluments of air mail contracts without giving competitors, who might be willing to do the work for less, the opportunity to bid.

"The conferees' agreement was in this respect in violation of R.S. 3950 and made their air mail contracts liable to annulment. It was an agreement to participate in a process of evasion and pretense to circumvent the well-known purpose and policy of a recently enacted statute, for the purpose of preventing the making of bids for carrying the mail."

The Watres Act, the decision explained, provided for extensions and the postal laws for subletting. "Assume that, by a sharp combination of the two devices a public official could lawfully circumvent the spirit and intent of each of the statutory permissions, for the purpose of defeating the legal requirement of competitive bidding. That still would not license the leading figures in the industry, bent on monopolizing the business and maintaining prices, to agree in advance to play their parts, not required by law, to accomplish the desired monopolistic end. They are not clothed with the statutory discretion which we have assumed for the public official, of preventing competitive bidding by sharp maneuvering. Their agreement is a naked agreement to take voluntary steps to prevent competitive bidding. Plaintiffs made such an agreement, and thereby became vulnerable under R.S. 3950."

In further support of the contract cancelations, the decision said: "We think that the conference agreement evolved, as the necessity for such an evolution developed, into an understanding that even if the Postmaster General should be required to advertise for bids, still there would be no competitive bidding by those who had participated in the conference."

A third reason for cancelation mentioned by the decision was the acceptance by Boeing Air Transport of an Omaha-Watertown extension "to assist Brown in preventing competitive bidding for it," although the company did not want the line.

United, which has fought the cancelations sine 1934, finally obtaining a hearing in April, 1938—with the decision issued over four years later—may still appeal the case to the Supreme Court. The company had not announced its plans as this issue went to press.

Josh Lee Nominated for CAB; Ryan Reappointed

Joshua Bryan Lee, former Senator from Oklahoma, was nominated for membership on the Civil Aeronautics Board by President Roosevelt on Dec. 15. Confirmation by the Senate is necessary.

Lee

At the same time, the President reappointed Oswald Ryan for a second term on the Board, and the appointment was confirmed by the Senate on Dec. 16. Ryan's new term will run for six years from Jan. 1, 1943.

Sen. Barkley, Senate majority leader, told the Senate on Dec. 16 that it will be legally impossible to confirm Lee's nomination until the next Congress is in session, after Jan. 1. The Constitution bans appointment of a Senator or Representative to a federal position during the time for which he was elected. Sen. Barkley indicated that the nomination was prematurely submitted by the White House through an inadvertance.

Lee, who was defeated for reelection to the Senate in the November elections, will fill the membership vacated by the resignation of Dr. George Baker, now with the War Dept. Lee's term will expire Dec. 31, 1943.

AMERICAN AVIATION DAILY reported on Nov. 30 that Lee was definitely interested in the CAB position, and later reported that he had the full support of Secretary of Commerce Jesse Jones.

Lee has an A.B. degree from the University of Oklahoma, where he graduated in 1917. He was an infantry private in World War I, later receiving his M.A. at Columbia University in 1924 and an LL.B. degree from Cumberland University at Lebanon, Tenn. in 1925. He taught in public schools as an athletic coach and instructor in public speaking, later joining the faculty of the University of Oklahoma, where he headed the public speaking department from 1919 to 1934.

Lee was elected to Congress in 1935. He is the author of *Soldier Rhymes*, 1919, and *Public Speaking Manual*, 1924.

CAB Investigates Airline Accident

CAB investigation was under way as this issue went to press to determine the probable cause of the Western Air Lines accident near Fairfield, Utah, on Dec. 15, killing 17 persons.

Two passengers, Lieut. A. F. Gardner of the Marines, and A. J. Mallett, survived the accident. Mallett was seriously injured, and his condition was critical as this issue went to press.

Among those killed were Guy Talbot, WAL's regional traffic manager at Great Falls; Edward J. Loeffler, pilot of the plane; J. Clifton Lee, co-pilot; Douglas Soule, co-pilot trainee; Miss Cleo Booth, stewardess, and Dick James, listed as a WAL employe.

Caster Wolf, a Civil Air Patrol pilot, first sighted the wrecked plane.

Lieut. Gardner was quoted as saying that he was alive because he had fastened his safety belt, and had instructed Mallett to do likewise, after he felt the pilot pull the plane's nose up steeply. He said he then felt a sudden jar, after which the plane crashed.

To All My Friends, Wherever They Are—

A Happy Christmas

A Good New Year

Bill Brinckerhoff

Carrier (1)	Present Schedules Authorized: Schedules Before Reduction — Daily Scheduled Plane Miles (2)	Planes Scheduled (3)	Average Daily Miles per Plane (4)	Schedules Recommended May 18, 1942: Daily Scheduled Plane Miles 1/ (5)	Planes Available (6)	Average Daily Miles per Plane (7)	Daily Scheduled Plane Miles Added Since May 18, 1942 2/ (8)	Daily Scheduled Plane Miles 3/ (9)	Planes Available (10)	Average Daily Miles per Plane (11)	Percent of Scheduled Miles Before Reduction (12)	Percent of Planes Available Before Reduction (13)	Percent of Average Daily Miles per Plane Before Reduction: DC-3 (14)	Lodestar (15)	Total (16)
American	89,180	74 DC-3	1,205	55,913	43 DC-3	1,254	16,198	69,999 2/	43 DC-3	1,628	78.46	58.11	135.10	-	135.10
Braniff	8,931	10 DC-3	893												
	2,860	5 DC-2	1,172												
	10,791	15	986	8,814	7 DC-3	1,173	1,882	10,096	7 DC-3	1,442	68.26	46.66	161.49	-	146.24
Chi & Sou	7,156	6 DC-3	1,193	4,426	4 DC-3	1,107	1,016	5,442	4 DC-3	1,361	76.05	66.67	114.08	-	114.08
Colonial	2,648	4 DC-3	662	1,333	1 DC-3	1,333	668	2,001	2 DC-3	1,001	75.57	50.00	151.21	-	151.21
Continental	5,435	6 Lodestar	906	1,699	2 Lodestar	850	3,179	4,878	3 Lodestar	1,613	89.02	50.00	-	178.04	178.04
Delta	6,000	5 DC-3	1,216												
	2,570	1 Electra	643												
	8,570	6	961	4,982	4 DC-3	1,238	760	5,712	4 DC-3	1,428	66.03	66.44	117.43	-	140.60
Eastern	52,261	39 DC-3	1,340	27,890	20 DC-3	1,395	8,371	36,261	20 DC-3	1,813	69.38	51.28	135.30	-	135.30
Inland	4,438	5 Al7-0	887	1,338	1 Lodestar	1,338	192	1,530	1 Lodestar	1,530	34.51	20.00	-	-	172.49
Mid-Continent	3,674	4 Lodestar	919												
	1,770	2 Electra	590												
	5,444	6	756	1,788	2 Lodestar	894	316	2,104	2 Lodestar	1,052	31.76	22.22	-	114.47	112.93
National	3,600	3 Lodestar	1,200												
	870	2 Electra	435												
	4,470	5	862	2,890	4 Lodestar	713	1,804	4,694	3 Lodestar	1,551	104.12	60.00	-	189.25	173.49
Northeast	3,570	5 DC-2	674												
	514	1 Electra	514												
	3,984	6	667	1,564	2 DC-3	782	890	1,954	2 DC-3	977	47.73	33.33	-	-	143.28
Northwest	14,430	10 DC-3	1,443												
	1,312	4 Electra	353												
	15,742	14	1,032	9,665	7 DC-3	1,381	1,078	10,743	7 DC-3	1,535	67.01	50.00	106.38	-	135.60
Penn-Central	15,980	16 DC-3	974												
	546	2 Al7-0	273												
	16,526	18	918	7,594	6 DC-3	1,264	-	7,594	6 DC-3	1,264	45.89	33.33	129.77	-	137.69
T-W-A	59,710	37 DC-3	1,587												
	2,066	3 DC-2	689												
	60,776	40	1,519	32,879	25 DC-3	1,315	9,332	42,211	25 DC-3	1,688	69.45	62.50	106.36	-	111.13
United	64,898	49 DC-3	1,324												
	3,312	13 Al7-0	255												
	68,210	62	1,100	43,641	33 DC-3	1,322	10,727	54,368	33 DC-3	1,648	79.71	53.23	124.47	-	149.82
Western Air	5,704	7 DC-3	815	2,882	3 DC-3	961	1,180	4,062	3 DC-3	1,344					
	2,282	5 Al7-0	456	1,890	1 Lodestar	1,890		1,890	1 Lodestar	1,890					
	7,986	12	665	4,772	4	1,193		5,952	4	1,737	66.64	33.33	164.91	-	199.85
TOTALS	325,572	257 DC-3	1,267	196,915	155 DC-3	1,285		290,893	156 DC-3	1,604					
	12,896	13 DC-2	869	8,985	10 Lodestar	893		11,413	10 Lodestar	1,141					
	12,709	13 Lodestar	978												
	8,316	16 Electra	520												
	10,974	25 Al7-0	439												
	368,867	324	1,138	205,900	165	1,248	56,993	314,709 2/	166	1,895	71.76	51.23	128.80	114.44	120.15

1/ The mileage figures shown have been computed on the basis of stops served on actual schedules flown. In computing the mileage figures for service recommended May 18, the scheduled intermediate stops used were those included in the carriers' first schedule filing under the reduced service pattern. The effect on mileage of minor schedule adjustments made after this initial filing is not reflected in subsequent mileage figures.

2/ Daily scheduled plane miles recommended May 18, 1942 plus the additions made subsequent to that date equals 70,111. The difference of 122 miles between this and the 69,989 miles shown in Column 9 is caused by 21 minor adjustments made in former schedules at the time of the addition of some approved schedules on June 24. This correction from 70,111 to 69,989 is a partial exception to the practice mentioned in 1/. Minor adjustments since June 24 are not reflected.

3/ 122 miles less than cross addition of Totals. See 1/ and 2/.

Plane Utilizatio Up 40%, Boa Study Sho

Domestic airline plane utili has increased 40% in less th months.

The 155 Douglas DC-3s in mercial service in late Oc were flying 26.6% more miles than in early May, before sch reductions. The 10 Lod Lodestars were flying 47.44% or an average of 40.16% fo equipment.

Although the airlines on Oc had 49% fewer aircraft than did in early May, scheduled mileage decreased only 28%.

These startling figures were vealed in an extensive study leased recently by the Aeronautics Board's research analysis division. The study with changes in the air service tern since initial wartime re mendations of May 18, 1942.

To obtain the most efficient u equipment, the Board on Ma proposed suspension of certain r and segments of other routes, elimination of a number of s Complete cooperation from al carriers resulted in successful adjustment of the nation's air s ice pattern, CAB asserted.

Average daily plane miles in e May were 1,138; on Oct. 31 were 1,595.

A total of 324 planes were domestic airline operation last flying 368,867 scheduled miles day in contrast to 165 planes f 264,709 scheduled miles on Oct

An example of what the la airlines have done is seen in case of American Airlines. In e May, the company's 74 DC-3s flying an average of 1,205 miles day per plane. On Oct. 23 it DC-3s were each operating miles daily, an increase of 35.1%

Among the smaller airlines, C tinental's six Lodestars were eraging 906 miles daily be schedule reductions. In October had only three Lodestars, each erating an average of 1,613 m daily, an increase of 78.04%.

Complete statistics for all dom tic airlines are shown on the ch on this page.

According to the CAB study, number of points in the U. S. which passenger service is n completely suspended totals 1 divided as follows: suspended d to national emergency, 45; due airport conditions, 28; not operat since passage of the Civil Aer nautics Act in 1938, 25; not op erated since issuance of new amended certificate, 8, and inaug ration of service delayed due to t present emergency, 1. The numbe of points in the U. S. at which pas senger service is suspended on on route but not on another totals

Actions of the Civil Aeronautics Board

Order No. 2052, Nov. 25, 1942: In the matter of petition of Pan American Airways, Inc., for reconsideration and rehearing of action of the Board on Aug. 7, 1942, which fixed rates for transporting mail on Pan Am's routes between San Francisco, Cal., and Auckland, New Zealand, and between San Francisco and Hong Kong, directed that petition be approved.

Order No. 2053, Nov. 25, 1942: Revoked student pilot certificate No. S-289894, held by John W. Nelson, for an alleged violation of the Civil Air Regulations.

Order No. 2054, Nov. 27, 1942: Suspended for 60 days student pilot certificate No. S-253808, held by Leonard L. Fruth, for alleged violations of the Civil Air Regulations.

Order No. 2055, Nov. 27, 1942: Suspended for 60 days student pilot certificate No. 260772, held by W. J. Ross for what it claims were violations of the Civil Air Regulations.

Order No. 2056, Nov. 27, 1942: Directed that in the case of the application of British Overseas Airways Corp. for amendment of permit so as to authorize air transportation between Trinidad and Baltimore, Md., testimony be withheld from publication, and that transcript containing testimony be released to counsel for BOA.

Order No. 2057, Nov. 30, 1942: Modified directions regarding payment of civil penalties and subsequent suspension of pilot certificates for non-payment, as originally set forth in Order No. 2033, issued Nov. 13, 1942, so that opportunity is afforded to pay fines in installments.

Order No. 2058, Dec. 2, 1942: Designated route which Caribbean-Atlantic Airlines, Inc., operated between the terminal point San Juan, Puerto Rico, the intermediate point Ponce, Puerto Rico, and the terminal point Mayaguz, Puerto Rico, and between the terminal point San Juan, Puerto Rico, the intermediate point Charlotte Amalie, St. Thomas, V. I., and the terminal point Christiansted, St. Crois, V. I., as No. 59.

Order No. 2059, Dec. 2, 1942: Dismissed petition of Carl F. Evers for reconsideration of order revoking his commercial pilot certificate, "after consideration of Respondent's petition and other evidence that Respondent is a naturalized citizen of enemy alien descent, that he has not met the requirements specified by the Administrator of Civil Aeronautics of an identification card, and that a modification of the Board's order of revocation would be inappropriate at this time."

Traffic

Northwest Airlines, Inc., discloses air mail carried in October amounted to 270,995 lbs., 28,222 more than in September, and 36,205 more than in October, 1941. Air mail pound miles totaled 240,105,888 in October, 1942, compared with 211,522,209 in September and 169,971,242 in October, 1941. Express carried in Oct. 1942 totaled 107,780 lbs., 38,118 more than in the same month last year.

American Airlines, Inc., report shows revenue miles flown for nine months ended September 30, 1942 as 21,665,771, contrasted with 23,766,559 in the same period of 1941. Revenue passenger miles were 309,745,343 in the same period of 1942, against 302,145,244 in 1941.

American Airlines, Inc., announces it flew 645,966,130 pound miles of air express in October, compared with 239,014,777 in the corresponding month last year, an increase of 170.26%. In the first 10 months of 1942, total pound miles of express operated was 4,749,577,129, contrasted with 2,130,105,465 in the similar period of 1941, a gain of 122.97%.

Canadian civil airlines had operating revenues of $1,129,864 in August, 1942 an increase over the $1,082,437 in July, and considerably more than the $822,536 figure in August, 1941, according to Dominion Bureau of Statistics, Ottawa. Currently civil lines carried 20,502 revenue passengers, compared with 20,162 in July and 20,100 in August last year. Revenue freight in the 1942 month was 1,145,217 lbs., a gain over the 1,119,721 lbs. in July, but below the August 1941 volume. Mail amounted to 416,408 lbs. currently, against 378,293 lbs. in July and 282,615 lbs. in August 1941. Average number of passengers per aircraft increased from 5.1 in July to 6.1 in August.

United Air Lines reports that "in spite of a decrease of 31% in revenue airplane miles flown," revenue passenger miles in November totaled 22,287,900, a gain of 10% over November, 1941. Express pound miles amounted to 685,338,000 currently, a gain of 132%, and mail pound miles were 1,427,962,000, an increase of 109%.

Order No. 2060, Dec. 4, 1942: Granted permission to Chicago and Southern Air Lines, Inc., to intervene in the case of the alteration and modification of certificate of Pan American-Grace Airways, Inc.

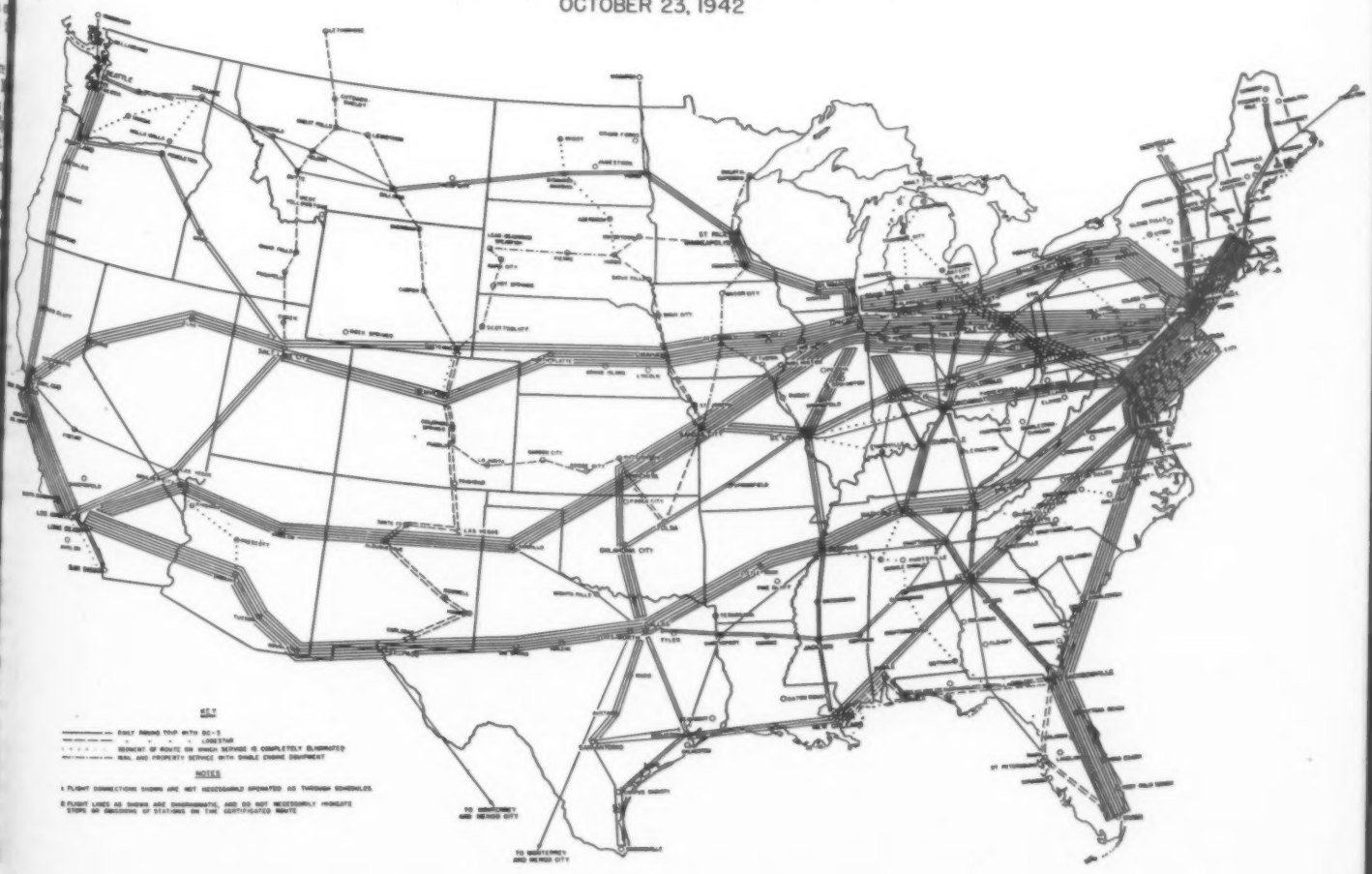
Order No. 2065, Dec. 8, 1942: Denied petition of the Postmaster General which requested modification of the Board's order establishing mail rates for American Airlines, Inc., with member Harllee Branch dissenting.

Order No. 2066, Dec. 8, 1942: Reaffirmed opinion of Oct. 19, 1942, which established mail rates for Eastern Air Lines, Inc., with member Harllee Branch again dissenting.

APPROVED SCHEDULES

UNITED STATES AIR TRANSPORTATION SYSTEM

OCTOBER 23, 1942



Du Pont Sees Short-Haul Use For Gliders on Future Airlines

SHORT-HAUL transportation with the pick-up system may represent the most important commercial use of the glider in the future, Richard C. du Pont, president of All American Aviation, Inc., and a veteran glider and soaring pilot, told the American Society of Mechanical Engineers Dec. 2.

All American is the only scheduled air mail and express pick-up operation in the world.

At the same time, he warned that "we are entering a new field in aviation which remains to be fully explored," and "we should not discard new ideas just because they seem fanciful in the light of experience or because without proper analysis they may on the surface appear to have no practical adaptation.

du Pont

"Many things in aviation which are commonplace today were once regarded as the dreams of visionaries. Never again must we permit an over-conservative influence to retard developments in aviation as they have done."

This was du Pont's answer to glider critics.

Pointing out that the larger aircraft become the less flexibility they offer for scheduled flying, demanding larger airports, better surfaced runways, etc., du Pont pointed out that the evolution of the domestic air transport system has been constantly toward bigger and faster planes, which can make fewer and fewer stops. As impressive as the domestic airline map appears, it actually covers only 355 cities, even including the 115 communities served by All American Aviation's pick-up system.

"Of the 240 designated stops on the trunk lines, many were suspended even before the war either because their geographical proximity to other points on the same route made it impracticable to serve them or because their airports were inadequate," du Pont told the convention.

"In 1934 our airlines covered 178 cities. From the standpoint of service, expansion of the system to only 62 additional cities in eight years, which still leaves ¾ of our population without the advantages of direct air transportation, is a feeble record of growth."

In the more than three years that All American has been in service mail and express traffic has reached the point of taxing capacity of the fleet of single-engined Stinson SR-10C planes which were converted for pick-up operation.

"From the air mail revenues that the service is generating, the Post Office Department is recovering its cost and perhaps making a modest profit," du Pont reported.

There are now in the CAB's files applications for additional pick-up routes which would extend the service by various companies to 1,400 more communities, and unquestionably a large part of the great expansion in air transportation that is anticipated after the war will be accomplished through the widespread establishment of air pick-up routes, the speaker said.

Higher Speeds

"There is no doubt that the pick-up planes in the future will operate at much higher speeds as faster and more suitable pick-up planes are designed. The same forecast may be made about the load limitations. The equipment now in commercial operation is designed to pick up a dead weight load of 50 lbs. However, in tests it has successfully picked up 125 lbs. and in daily operation it has picked up loads of from 60 to 100 lbs. without trouble, and equipment now in military use can pick up much heavier loads."

Asserting his belief that the short-haul field offers the best opportunity for commercial glider operations, du Pont said "It would now seem that by employing the air pick-up by which gliders can be picked up and delivered in the same fashion that air mail and air express are handled today, we could provide with flexibility a much needed cubic capacity for greater payload . . . The airline industry realizes that to build up freight traffic the ton-mile costs of air transportation must be drastically slashed, and that at present the airplane which will enable the industry to compete with surface carriers for this traffic on a cost basis is not in sight.

"I am not prepared to enter into the highly controversial questions involved as to whether the over-all efficiency would be greater in air freight operations if the cargo were distributed among gliders or confined to a single unit. I do, however, wish to point out clearly what in my opinion are the three most important advantages that can be obtained through the use of gliders when combined with the Air Pick-up.

"When contemplating an air freight operation, when it seems desirable to overload an airplane, the first questions will be:

(1.) Are the runways where service is to be provided long enough to permit safe take-offs and landings?

(2.) Is the cubic capacity of the plane sufficient, and is it located in the proper place to provide proper balance?

(3.) Is the airplane strong enough to safely carry the overload?

Need Flexibility

"If the utmost flexibility is not provided, aviation cannot provide a complete public service. It is in meeting this public demand for flexibility that it would appear that the glider when combined with the extreme flexibility of the air pick-up can render its greatest service and can demonstrate the kind of efficiency and flexibility that has heretofore never been dreamed of in any kind of transportation. Namely, it could provide express and local service combined in such a way that cargo passengers could be carried route on which service is at numerous intermediate but where at the same time passenger and shipment receive in effect, through

"The maximum load-carrying ability of a formation (without up feature) could not be over the entire route and the lem of retrieving the gliders returning them to terminals remain. With the application the air pick-up principle, our cargo glider operation to assume more practical The pick-up gives it the tion of speed and flexibility are the primary requirements short-haul transportation. respect to the speed factor, ready has been shown that present air pick-up routes scheduled speed is 89% of cruising speed of the aircraft, plying this ratio to the speed of a DC-3 with gliders tached, which has been at 135 miles an hour, we maintain a scheduled speed of miles an hour over a hypothetical route in a straight pick-up tion. This would be at least miles an hour faster than glider-tow operation described, and still two miles an faster than the average speed now maintained by over a route of this sort.

"On glider pick-up routes there is more than one intermediate stop it will be necessary, course, to operate glider tions composed of one for intermediate point. Our hypothetical route would require and three gliders. At each route point a glider would be livered and another picked which would give these places ice both to and from something that would not be sible otherwise, unless were made. Use of more than glider should not materially the schedule speed of the operation. The frequency of pick-ups little or no delay. Experience air pick-up operations to date shown that pick-ups can be at speeds substantially above of the cruising speed of the plane, as in tests pick-ups been made at ground speeds high as 160 miles per hour. appears to be no immediate to the speed at which pick-ups can be made, nor does there to be any immediate limit to the size of tug and gliders used for such operations. Furthermore, glider pick-up experiments already have demonstrated that little or no more delay is required for a glider pick-up than for a mail pick-up.

"One of the outstanding features of the glider for military purposes, and one of the outstanding safety

Pacific Rescue: After drifting for three weeks in rubber boats, Capt. Eddie Rickenbacker and companions were rescued in the Pacific by the Navy. Shown here, on a Pacific island, eating one of their first meals after rescue are, left to right, Lieut. James C. Whittaker, Capt. William T. Cherry, Jr., pilot of the doomed plane, and Rickenbacker.

Sorrell with ATA

Dr. L. C. Sorrell, professor of transportation at the University of Chicago, has joined the Air Transport Association as director of research. Recently, Dr. Sorrell has been connected with the War Production Board.

...ors in operating motorless craft, ...the fact that it can be landed in ...as many times smaller than an ...plane of equivalent capacity. ...rough the employment of the air ...k-up system it can now be re...ved by air from similar areas ...ich ordinarily would make it ...essary to dismantle the craft. ...is advantage means that the size ...local airports need not restrict ...e scope of glider pick-up service ...scheduled operations as it does ...in trunk line operations. When ...re efficient tug and glider com...ations have been designed and ...re experience gained in the op...ation of glider formations or ...ains, we undoubtedly will find it ...sible to tow a relatively large ...mber of gliders by a single tug ...ich will still further increase the ...ibility of the glider pick-up sys...n allowing greater intensification ...this type of service.

"There are those who believe that ...der operations will never be prac...al commercially because of prob...ms concerned with take-off, rough ...ther, blind flying and similar ...fficulties. This theory reflects ...e philosophy which for years has ...en retarding the development of ...ation, and I must express com...ete disagreement with it. With ...spect to these particular prob...ms, substantial progress has al...dy been made in meeting them. ...oblems relative to take-off al...dy have been practically elimin...ed by the adaptation of the air ...k-up system to launch gliders. ...e Germans have used rockets ...r this purpose. Rough air op...ations have been practically cor...cted by the use of special tow ...es and special shock-absorbing ...uipment. Problems involved in ...ind flying are being worked on ...d have already been practically ...liminated through special blind ...ght instruments. It is a safe ...rediction that if a progressively ...nstructive attitude is taken toward ...e solution of these problems, ...ey will be solved and solved ...uickly.

"While it appears that the glider ...ay have its most important com...ercial application in the further ...evelopment of short-haul air ...ransportation, recalling again that ...e term 'short-haul' is purely ...elative, it must be appreciated ...at we are entering a new field ...n aviation which remains to be ...lly explored."

TWA Reports $1,531,665 Net

For the nine months ended Sept. ..., 1942, Transcontinental and ...estern Air, Inc., Kansas City, Mo., ...eports net profit after taxes as ...1,531,665, equivalent to $1.61 a ...are, compared with net loss of ...9,204, or 5c per share, in the same ...eriod last year.

This improvement was made pos...ible, company explained, because of ...creased seating capacity in each ...lane due to discontinuance of ...eeper equipment, capacity loads ...uring most of the reporting period, ...etter use of equipment and elimi...ation of scrip discounts.

It was also pointed out that, since book gain resulting from requisitioning of aircraft by the Government has been credited to surplus, this credit and earnings have caused a 36% increase in the firm's net worth in the current period, raising book value per share to $11.02. Also current assets increased 66% and working capital gained 94%.

Kraght, Bailey, Bowdoin Win ATA Annual Awards

Peter E. Kraght of American Airlines has been named by the Air Transport Association as the airline employe who during 1942 conducted the best research having a practical application to airline dispatching and meteorology.

Kraght

C. E. Bailey of Eastern Air Lines, stationed at Atlanta, won second prize, and J. W. Bowdoin, also of EAL at Atlanta, won third. Prizes were $250 $150 and $100, respectively.

Kraght's study was entitled "Summer Sea Breeze Stratus Over Long Island and the New York Metropolitan Area." Bailey wrote on "Low Ceilings and Fog at Corpus Christi Airport," while Bowdoin's title was "Low Ceilings and Fog at Houston, Tex."

Bailey Bowdoin

Explaining the significance of the studies, an ATA official pointed out that they can be used by any dispatcher to determine what the conditions will be at Long Island, Houston and Corpus Christi at a given time based on temperature, pressure, dew point and wind readings over a period of time.

According to Fowler Barker, ATA secretary-treasurer, the studies were selected from 10 entries submitted by all classes of personnel, and chosen, first, by ATA's meteorological committee, and then passed upon by the operations committee. Awards were first given in 1940.

Papers for the 1943 award are due Jan. 1, 1943.

AA, CAL Honored

American Airlines and Continental Air Lines on Dec. 10 received awards for excellence of maintenance. The awards are made annually by *Aviation* Magazine.

Airline Commentary

CAB finally released a new route decision, awarding Continental Air Lines the Denver-Kansas City line . . . This was one of the most coveted routes in the country, one which Continental has been after since 1938 . . . It should be a money-maker . . . Look for some more new route decisions very shortly, unless they get tangled up with some pending rate cases . . . Off the record, that's what happened to the Denver-Kansas City decision . . . It was almost ready to be released a long time ago . . . Then along came the American and Eastern rate cases, and Denver-KC got pushed back . . .

●

Air travelers who have visited Washington National Airport recently may have noticed that the management is busy increasing airline counter space . . . Could it be coincidence that this happened at about the time United and TWA were recommended for routes into Washington? . . . Or is the management anticipating? . . . We understand they deny it . . . An examiners' report is a long way from a final decision, but maybe someone thinks this is a sure thing . . . Our spies tell us that in addition to counter space, provision is also being made for more baggage chutes . . .

●

Sam Solomon's Northeast Airlines was lifted into the big time by TIME recently, an extraordinary national editorial break for one of the smaller companies, and a tribute to the way Solomon anticipated and prepared for a major role in the war . . . The Washington *Evening Star* worked some of TIME's material into a bigger story . . . Solomon and every employe of NEA should feel mighty proud . . .

●

Reports of amazing load factors continue to come in . . . Pennsylvania-Central Airlines' trip 9 had a 100% load factor out of Norfolk every day during the month of November . . . Slightly different from the good old days . . .

●

In answer to our recent request for suggestions on how the airlines should explain to their passengers the presence of empty seats (made necessary by heavy express-mail loads) on some trips, Willis G. Lipscomb, general traffic manager of American, writes: "This is a good point and one which has harassed all of the carriers for a long time. A couple of years ago, we undertook to combat this problem by a folder describing circumstances responsible for empty seats, adding this to our literature packet. We have had many favorable comments from passengers on this booklet, and it appears to have done a pretty good job for us. Obviously the chief difficulty is to get passengers to read it, as many do not look into the literature packet at all. The idea of placing a card in each empty seat which could be easily read and necessarily seen by most of the passengers in the plane might be an improvement upon our booklet if there weren't a number of complications involved" . . .

●

CAB let the Post Office Dept. have its day in court and then definitely and finally (we hope) said it would not reconsider its decision in the Eastern Air Lines rate case . . . The Board also refused to reopen America's case . . . Thus, two of the nation's largest airlines finally, after these many, many long months, know definitely what their mail rate is . . . And the Post Office has at least put on enough of a show so that the Appropriations Committee won't think it's asleep (which really was one of the reasons for all the fuss) . . .

E. B.

TCA Flights

In announcements of current services, Trans-Canada Air Lines reports it now has two non-stop round trip flights which are operated between New York and Toronto each day except Saturday and Sunday. Also, it operates three flights daily between Montreal, Moncton and Halifax and two flights daily between Moncton, N. B., and Newfoundland. Two transcontinental flights are operated in both directions and two flights go from Montreal to Windsor, Ont., via Ottawa, Toronto and London. In addition, two flights are operated between Lethbridge and Edmonton via Calgary.

CHICAGO AND SOUTHERN AIR LINES, INC., Memphis, Tenn., has reported in the press declaration of 25c dividend on common, payable Jan. 2 to holders of record Dec. 10, and dividend of 17½c on preferred, payable Jan. 1 to stock of record Dec. 1. It was also announced that preferred has been called for redemption at $12.50 per share on Jan. 1, 1943. This class is also convertible on the basis of two shares of common for each of preferred. Company has explained in letter to stockholders that if they converted preferred into common in the period Dec. 2 to Dec. 10, inclusive, they were entitled to receive both the preferred and common dividends as previously declared. Conversion privilege expires Dec. 31, 1942.

Cargo Plane Design Not Immediate Nee

Writer Urges Manufacturers to Concentrate on Improving Airlines' Ground Efficiency

By E. J. FOLEY

AIRCRAFT manufacturer—airline operator discussions on the future of air cargo are surrounded by understandable technical and commercial complexities and compromises. In spite of the fact that it is not always considered in such conversations, one point is unconsciously highlighted. It is, that regardless of what we carry or in what airborne vehicles we carry it, the future of air transportation can profit most through *efficient flying, maximum aircraft utilization.*

In the light of this, we wonder if the manufacturers are not guilty of some surface thinking regarding their goal in the air cargo future. The fundamental resemblance between the race horse and the work horse is hardly a basis for simply padding the harness of the race horse and expecting work horse output and efficiency.

Foley

In our air cargo discussions, the terms, fish, flesh, flowers and 1 c. l. freight come into play. What the commodity possibilities and importances of these things will be tomorrow depend upon applied analyses and able selling of the transportation itself. Flow of goods, surface and air rates, public demand, packaging—the knowledge of these elements must be summarized and more research carried out daily before the specific vehicle designation and technique concept for cargo can be much more than presumption.

Many of us feel that the accented military cargoes of today, reels of cable, sheet steel and aircraft engines, are in no way representative of tomorrow's loads. It has been the thought that high dollar-value per pound of commodity was a controlling factor in air cargo business. This high value might be real, physical or an immediately imposed value in the light of an emergency where speed is money.

New Markets

Yet, we see an ever-growing trend toward a line of thought contrary to this. It is entirely possible that, proven safe, dependable and fast, air cargo can tap tremendous new, heavy markets. The sales angle to be impressed in these cases would be that we could relieve them of the necessity of concentrating large capital inventories in expensive distribution warehouses all over the country. This slant on the future possibilities may well have terrific effect upon the final form of our services.

The door-to-door delivery problem and its cost have a tremendous significance to the future development of this phase of the air transport industry.

If we think of our air cargo as a global business, we visualize operation into the metropolis no more often than the jungle, perhaps; into postage stamp airports as frequently as massive air terminals. Ultimate service may encompass route operating increments of from 50 to 5000 miles. Adding these two possibilities together, we see two extreme examples: 75 pounds of films being flown New York to San Francisco, thousands of miles; 2000 pounds of rubber being flown from inland South America to the coast, dozens of miles.

In our opinion, those who speak of *the air cargo airplane,* if they are being literal, are discussing a poor, partial, doubtfully attainable solution. An analytic consideration of the scope, routes, facilities, cargoes, rates, etc., of the business forces us to the realization that no one answer holds for a dozen different questions. A comprehensive planned "technique" using several kinds and sizes of equipment represents the total answer to the air cargo problem.

As we see it, the handling and lashing or tie-down of cargo in the aircraft is this same type of many-sided problem. Except in rare cases where cargo standardization may occur, flexibility of aircraft interior and various possible procedures for fastening cargo seem necessary and desirable.

Among the elements receiving attention in this air cargo or air freight analysis are: (1) what we shall carry; (2) where we shall carry it in the airplane; (3) how we shall fasten it in the carrier; (4) how can we reduce carrying costs; (5) the handling of the cargo prior to, during and after flight; (6) the packaging of the cargo, and so on. An obvious omission from the above list is the design of the aircraft in which we are to carry the cargo.

The position of the designer specializing in air cargo work is extremely difficult, we should think. His purpose is self-evident generally, but complicated specifically. The all-purpose design he knows to be an impractical if not impossible solution. Without a more detailed knowledge of the specific *function* of the craft than most of us have today, his problems become too few equations with too many unknowns.

Need Direction

Given the basic requirements for such elements as speed, load, power, fuel octane, etc., any aircraft manufacturer and his supporting suppliers could produce a certain cargo plane. Undirected, all companies might produce the same basic type; or possibly, the end products might represent a whole family of cargo planes, (even glider tugs and gliders) to sustain the whole cargo picture.

It is unlikely that any cargo plane, the product of American engineering ingenuity would fail in its primary purpose, i. e., carrying cargo. However, current design knowledge and technique would be the logical foundation for the primary and secondary concepts embodied in the ship. The net re... would be representative of past ... perience plus design and manu... turing developments encoun... en route. Whether this is all ... should expect in a result is qu... tionable.

Utilization Important

If you recall, at the outset, ... declared that air transport ... or falls on the maximum utiliz... of an efficient transportation ... hicle. "To move the most with ... least," might be a brief expres... of the aim of the operator. Wi... out any black magic, a fleet of ... aircraft becomes a fleet of 15 if ... can fly them 15 hours a day ins... of 10.

It is on this score that we ... that the aircraft manufacturers ... be guilty of surface thinking. It ... logical, we think, that the ... efficient cargo plane is attainab... only with great difficulty, if ... starting point is a comparatively ... efficient passenger plane. Or as ... said, padding the harness does ... assure work horse performance. ... a matter of fact, had it be... feasible, we could have done wi... out the race horse in the first pl... and been better off.

We feel that the air transp... operators' position would be ... proved both from a short and lo... term point of view if the manufa... turers would take first things fi... Repeatedly these columns ha... carried expressions of dissatisfa... tion with "dirty" secondary desi... and airline comment has support... our position. This inattention ... detail and apathy toward the weal... of service experience in the airlin... have left our science of airpla... design in an unbalance sta... Flight performance may be ... sidered excellent. The airlines wa... more flying hours *per day* to a... preciate this excellence; more fl... ing hours to be realized witho... jeopardizing in any way the... splendid safety standards.

Functional Design

Therefore, we suggest that ... aircraft manufacturers who wish ... bid successfully for future airli... business concentrate upon *fun... tional* design *first.* Bring ground ... performance up to flight perform... ance. Then, when we level off, fi... specific design details of car... carriers can progress on a soun... basis.

Our past recommendations ... such manufacturer-activities as ser... vice-stations to assist the operato... in his daily problems, and at the ... same time permit the maker to ... absorb the spirit and experience ... the transport industry, still hold... While stress analysis, aerodynamics, ... weight control and material spec... make transport flight *possible* and ... *safe,* we need more concern for ... maintenance and handling to make ... *efficient* flight *practical.*

We realize that the dedication to ...

(Turn to page 52)

Tire Care: Braniff employees, Nick Morale, left, and Inspector H. M. Mefford are shown demonstrating the proper care of aircraft tires as practiced by the airline. Morale is cleaning the tire thoroughly with soap and water while Mefford checks for proper inflation. Note the canvas cover which is immediately placed over the tire to prevent the accumulated oil incident to an engine check from dripping on the tire.

...wer Package Used in ...ircraft Subassemblies

...new driving mechanism, the ...er package, has been announced ...General Electric Co. for use in ...raft subassemblies. Designs are ...hand for such applications as ...ing gear and wingflap operation ...the operation of control and ...ective devices.

...e package combines in one ...l unit as many items as a mo... brake, clutch and limit switch ...well as indicators, gears and ...ever else is required for the ...ific job. They are designed for ...our service and range from ...hp to 3 hp.

...new planetary gear system per...s the use of a magnetic brake in ...power package for some appli...ons. The brake is the quick-...ing friction type to prevent over...el and jamming of the driven ...ably. With power off, the brake ...s the equipment and prevents ...ep.

Camera Motor

...Signal Electric Mfg. Co., Menomi..., Michigan, is currently manu...turing a fractional horsepower ...tor designed for aircraft aerial ...era. Wrinkle finish, it is 1/120hp ...d 12 volts with a speed of 6000 ...m. Other specifications include: ball bearings; 14 ounce weight; housing diameter 2 3/16"; overall length less shaft 3 7/32"; a shaft extension 1" and shaft diameter 0.1875".

Cutter-Grinder: Features claimed for this new Hilco Universal Cutter-Grinder, a product of the Berco Mfg. Co., 429 W. Superior St., Chicago are: extreme flexibility; low-cost setups; wide cutter range applicability; compactness and absence of vibration, and low price. The Hilco is a bench type machine, 21" long, 17" deep and 17" high, weighing 135 pounds. It is said to be able to grind to perfect sharpness any concave, convex, helical, straight, tapered angle or special cutter up to 6" diameter and any saw up to 18" diameter, regardless of the required cutting angle.

Inverter Ballast

The General Electric Co. announces a new d-c to a-c inverter ballast for fluorescent lighting of aircraft instruments and indicators. This ballast provides output voltage suitable for operation of two 4-watt Mazda F lamps, designated as T-6 by 2½, FA-5 (pinless) blue F-6 lamp for instrument panel lightning. They also provide, by means of a second winding, a 3 volt, 1.5 amp output supply for operation of such lamps as the 0.19 amp, 3 volt T-1¾ lamps for indicator lights. The new ballast is suitable for operation at rated currents at sea level to 35,000 feet altitudes; the total weight is two pounds, eight ounces. Special compound treatment of the windings allows operation over ambient temperature range of —15 to +140 F without coil damage.

Pneumatic Drill

A new lightweight pneumatic drill is being manufactured by Ingersoll Rand Co., 11 Broadway, New York. Designated as Size OOA Drill, it weighs less than 2 pounds and is powered by a "Multi-Vane" air motor. A built-in speed regulator may be set for desired performance and split-second throttle action permits quick accurate hole-starting, it is claimed. Built-in automatic oiler provides necessary lubrication.

Emergency Power: Walter Kidde & Co., Inc., West St., Bloomfield, N. J. announce the harnessing of carbon dioxide gas as a source of emergency power in their new device, Power Actuator Cylinder. The unit consists of a steel bottle of gas connected to the pistons of such systems as bomb-bay door opening, landing gear retraction and wheel brakes. Upon failure or damage in the regular system, the compressed gas released into the system, operates the pistons. Each cylinder or bottle holds a latent force of 30,000 foot-pounds per pound of compressed carbon dioxide.

Basket Coating

A new coating for wire-made transporting and degreasing baskets is now being manufactured by Resistoflex Corp., Belleville, N. J., and is already being used in the aircraft division of Packard Motor Car Co. Known as Resistoflex Solution, the new coating is a mod.fied polyvinyl alcohol resin in solution form.

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Industry Could Double Output Yearly, But Now Runs At 60%, Girdler Says

"BEYOND a doubt we now have air supremacy over Hitler, but today's total output of America's aviation industry is hardly 60% of its present potential capacity, if we had the materials and the men," Tom M. Girdler, veteran steel executive and now chairman of Consolidated and Vultee Aircraft, believes.

"To double production (as requested by Donald Nelson) you would not have to double the working force," and there would be little expansion needed in the airframe production facilities."

Crux of the problem is in material supply, with a moderate increase in manpower, the chairman of Republic Steel Corp. contends. He describes himself as "a steel man on part-time loan to the aviation industry."

Once a plane has been reasonably standardized the industry can, if necessary, practically double production each year due to improvements in method introduced as work progresses and to accumulation of experience, Girdler says, referring to those who have contended that aviation could never be a mass-production industry.

"Such progression expands mighty fast," Girdler says. "For the first year two times one is just two. But in the second year two times two becomes four, and in the third year the product is eight. We doubled Liberator production in just six months after Pearl Harbor with only 10% increase in workers, or a decrease in man-hours of some 50% per bomber. You can cut down man-hours per bomber but you can't cut down materials you need for each bomber. I am convinced that the new Controlled Materials Plan promises to uncork a lot of bottlenecks of production."

In manpower, the major difficulty has been loss of workers to enlist, rather than induction, Girdler says, in one recent month 85% of West Coast personnel resigning to enter the services enlisted and the remaining 15% representing draftees. Since enlistments have been stopped by Executive Order this condition has improved.

"In building planes . . . the aviation industry has accomplished miracles of production. We are building more planes this year than in all the 20 years before the war. Today 30 prime contractors operating 70 separate plants are making 70 types of planes for war uses. When you realize that dollar volume of the industry is running at an annual rate 10 times that of the automobile business in 1940 you get some idea of the dimensions of this activity.

"I have never seen such a magnificent spirit of cooperation as is being carried on through the Aircraft War Production Council on the West Coast. The industry has thrown all of its resources into one vast pool. Probably 10 years of normal advance have been crowded into one."

Emphasizing that U. S. planes are being improved constantly as battle reports flow into Washington from the combat areas, Girdler reveals that in the case of the Consolidated B-24 some 200 changes in design were made in the last year.

In studying lessons of the war with respect to the future, the industrialist says that "the inevitable conclusion is that land and sea forces can win only when accompanied by air supremacy. Men still have to fight on land and sea but margin of power lies in the air. Planes in existence today may be useless tomorrow. It means keeping alive the nation's facilities to produce and develop better planes. So necessary are airplanes to present-day military tactics that the surest way to render any aggressor nation impotent would be to deprive it of warplanes."

Our great strength as a nation lies not only in our vast natural resources but also in our ability to organize large-scale conversion of these resources into finished goods. No other nation has our knack of making things so fast.

"An example is the Japanese Zero which was brought for study from Alaska by the Navy. It is a hand-made job, and good in a dog fight, though inferior to our types in speed, protection and firepower. I know now that they cannot produce enough of them by their outmoded hand methods to keep pace with our output of fighting planes.

"There is no longer any doubt of the fact that aviation will come into its own as a new and revolutionary element in transportation. I do not mean to say for a moment that the older forms of transportation are to be swept aside. There will be ships still, and railroads and motor cars. But the air will assume a new and growing importance. Today's planes give you only the barest hint of what you are going to see in the near future."

Guiberson Elects

Guiberson Corp. and the Guiberson Diesel Engine Co., Dallas, Tex., have announced that its directors have elected a management committee to direct expanding operations of the two companies. Committee members are: Harry S. Zane, Jr., vice-president; Alex P. Smith, vice-president and controller, and R. D. Wallis, secretary and treasurer. S. A. Guiberson, Jr., founder, and N. G. Guiberson, vice-president, are ex-officio members.

Beech Aircraft Nets $2,417,819

Beech Aircraft Corp., Wichita, Kan., had net income of $2,417,819, for the fiscal year ended Sept. 30, equal to $6.04 a share, according to press report. This income compares with $471,715, or $1.17 a share, in 1941. Current net sales amounted to $59,592,953, contrasted with $8,062,204 in the 1941 period.

Provision of $891,930 was made currently for Federal income taxes, and $5,537,466 was reserved for excess profits taxes, after deducting $47,053 for post-war excess profits tax refund, and provision of $7,200,000 for refund on Government contracts.

Company explained that as of Nov. 25, it rejected a War Department proposal for downward adjustment of net income. This would have reduced income, before tax provisions, by about $2,715,373.

Victory Aircraft Ltd. Names Officials

Board of directors and president of Victory Aircraft Limited, Government owned company recently established to operate the Malton aircraft plant formerly owned by National Steel Car Corporation Limited, have been announced by C. D. Howe, Canadian Munitions Minister.

J. P. Bickell, Toronto, president, McIntyre Porcupine Mines Limited and directed of the International Nickel Company of Canada, is president of the new firm.

Directors are: S. H. Logan, president, Canadian Bank of Commerce; Donald MacAskill, director and former general manager, the International Nickel Company of Canada Limited; E. C. Fox, chairman, Canadian Cottons Limited and W. Kasper Fraser, barrister, all of Toronto.

4 AWPC Members Finance $2,100,00 Super Wind Tu

Work on what is "probabl most advanced wind tunnel built," was started recent Pasadena, Cal., according to the craft War Production Council. It will be constructed and ope by the California Institute of T nology, but located off campu

Estimated to cost about $2,10 when finished, the tunnel is b financed by Consolidated Air Corp., Douglas Aircraft Co., Lockheed Aircraft Corp. and A American Aviation, Inc., fou the eight members of AWPC.

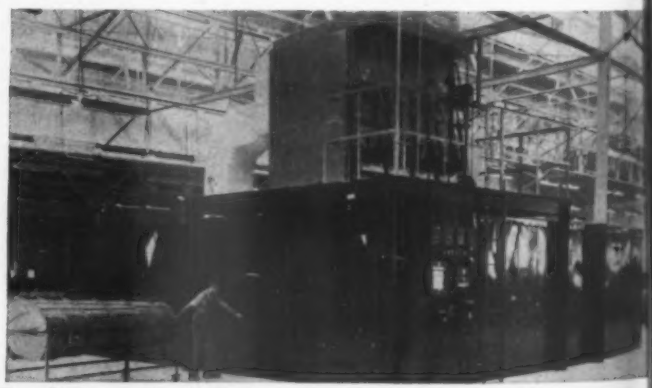
After completion, the tunn designed for use in testing s scale models of planned airp so as to determine wind resist lift, performance characteri control forces, flying qualities other essential factors in a dynamics.

Announcement discloses "aircraft manufacturers expec build planes in the next few y that will have diving speeds ceeding nine tenths the speed sound." Since sound travels a 1,087 feet per second through air, or 12.35 miles per minute about 714 mph, airplanes of future may be designed to div a speed in excess of 700 mph.

AWPC explained that the tunnel will be equipped to at maximum speeds of about mph, and pointed out that on few existing tunnels are capa of testing speeds greater than mph.

An identical tunnel is being b in Buffalo, N. Y., by the Curt Wright Corp. Design of both tu nels has been under the supervi of Dr. Clark B. Millikan of Cal and Dr. Norton B. Moore of C tiss-Wright, with the collabora of engineers from the four a craft companies previously m tioned.

In commenting on the va which these tunnels are expe to lend to future aircraft des AWPC estimated that "in aeron tical developments of the next years the existence of such fa ities will be of fundamental portance to the United States her allies."



For Baking Fuel Tanks: United States Rubber Co. uses th huge gas oven for final curing of fuel tanks for U. S. warplanes Workman at left is about to place a tank in the oven.

Open for business

Somewhere today between Tokyo and Tulagi ...or Naples and Narvik...bomb doors of hefty Vega Venturas are opening for the business of hitting the firm of Adolf-Benito-Hirohito where it hurts...*plenty.*

Just where...and just how...communiques will tell—in stories of advance Jap air bases demolished, of vital Nazi shipping sunk.

For these are jobs Venturas were designed to do...the kind of Axis-smashing jobs their veteran brothers, the Lockheed Hudsons, have long been doing. And these Venturas... bigger, doubly-armed...are more than keeping up the family tradition. They're improving it! Lockheed Aircraft Corporation, Vega Aircraft Corporation, Burbank, California.

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★ ★

Over a period of years, TWA has received support not only from its stockholders, but also from the Government, under the terms of the Civil Aeronautics Act—as have other airlines. This Government assistance was provided, in part, to prepare the airlines to serve the needs of the National Defense. This is the first in a series of reports telling how TWA is fulfilling its obligations to the nation in wartime.

★ ★

WHAT ABOUT AIRLINE

Certain questions have arisen in the public mind about commercial airline operations today. We can readily understand why.

We in TWA, for instance, with about half our planes now in military service, are carrying as much traffic over our domestic routes as a year ago.

At the same time, large numbers of our experienced personnel have been released for military service or special war work.

It is only natural that you should ask how we are maintaining safety and service standards under these conditions.

There seems to be a tendency, in some lines of business, to accept lower standards of service and operation as a thing to be expected under the pressure of war conditions. We, however, are making every effort to maintain the quality of our service, despite these conditions. The frills common to luxury air transportation in peacetime have been eliminated. But everything essential to reliable, courteous and efficient airline service has been retained.

The following questions and answers indicate certain of the things we are doing to maintain our usual high standards of safety and service.

Jack Frye
PRESIDENT

SAFETY

QUESTION: ***In view of the more intensive use of its planes, how does TWA keep them in first-class condition?***

ANSWER: We have greatly increased the amount of maintenance work per plane. In September, 1942, for instance, maintenance hours per plane totaled 3,167 as compared to 2,535 in September, 1941.

When the number of our planes was reduced and our mileage cut accordingly, an over-supply of experienced mechanics resulted. Thus, while many of our trained men have entered military service, we have been able to retain a highly skilled maintenance corps. These men, by devoting more hours to each plane, have readily upheld our maintenance standards.

QUESTION: ***How does TWA manage to have sufficient experienced pilots, with so many men called to military service?***

ANSWER: When the size of our fleet was reduced, we were able to release many pilots to the military and still retain a full complement of seasoned captains and first officers. Captains remaining on our domestic service average 5,738 hours' flying experience. First officers average 1,604 hours' experience. In July of this year we doubled the frequency of check tests for our pilots.

We now have more pilots in training than ever before, due in part to preparation of men for Government Air Cargo flying. Sixty per cent of our student pilots have had experience as pilot instructors.

QUESTION: ***How are TWA planes kept mechanically up-to-date at this time?***

ANSWER: A large number of safety projects are "in work" in our engineering department. For example, TWA recently developed a new system of cockpit lighting—"black" light in combination with fluorescent-treated dials. This system eliminates glare, improves visibility of instruments, and makes possible normal outside vision at the same time. Also new is the installation of blinker lights on the tail and above and below the fuselage of our ships, making them highly visible for greater distances at night. Three other projects are aimed at still further minimizing ice interference in winter flying.

TRANSCONTINENTAL &

★ ★ ★ ★

NSAFETY AND SERVICE?

SERVICE

QUESTION: ***How does TWA efficiently serve the war transportation needs over its domestic routes with nearly half its planes in military service?***

ANSWER: First, by getting more work out of each of our remaining planes. On the basis of traffic carried, each plane now does 89% more work than a year ago. We accomplish this by flying more hours per day; by making more frequent stops to permit smaller fuel loads and greater useful loads; and by careful scheduling to achieve maximum use of equipment. Another factor is our new Central Traffic Dispatcher's Office—unique in air transportation. On the job 24 hours a day, this department is responsible for seeing that all available space is filled with most urgent traffic. It also enables us to make reservations for cargo space—a service important to shippers of war materials. From Sept. 24 to Oct. 21, 1942, (latest Government figures) TWA achieved, on its transcontinental route, the highest space utilization factor of any airline in the nation—94.3%.

QUESTION: ***How does TWA maintain courteous, helpful service?***

ANSWER: Through intensified training and increased supervision. We believe we are succeeding, judging by unsolicited, favorable comments from our passengers. A few of them appear below:

My recent trip between Los Angeles and New York, via TWA, was the most pleasant I have ever experienced—except via Stratoliner. You and your associates are to be commended for maintaining the same high type service characteristic of TWA, in the face of our strenuous and exacting times.

R. S. MADISON, *Merco Company*, Los Angeles.

Our company recently was awarded the Army-Navy 'E'. We feel this high honor was conferred on the John Browns and Mary Smiths who work not only at Vendo but also at TWA. It was your assistance and co-operation that helped make our performance possible.

E. F. PIERSON, *The Vendo Company*, Kansas City.

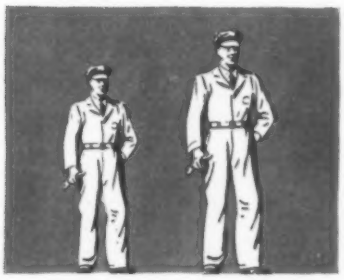
May I congratulate you and your employes on your excellent handling of passengers in these hectic times. I flew from Los Angeles to New York recently and enjoyed every moment. Our hostess was on hand for every need. The food is still superb as on previous trips.

ALFRED RITTER, *Douglas Aircraft Co., Inc.*, Long Beach.

It is good to receive the same quality of service these days and to note your excellence of maintenance in spite of the other pressing demands of the day. Not one item of TWA service missed on this trip.

CHARLES W. MCALLISTER, *Sinclair Refining Co.*, New York City.

MAINTENANCE PER PLANE

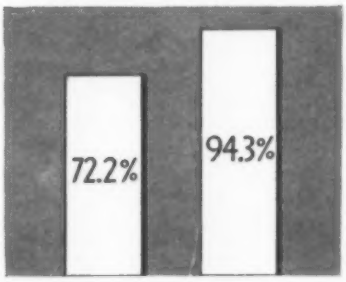


1941 1942

TRAFFIC CARRIED PER PLANE

1941 1942

AVAILABLE SPACE UTILIZED



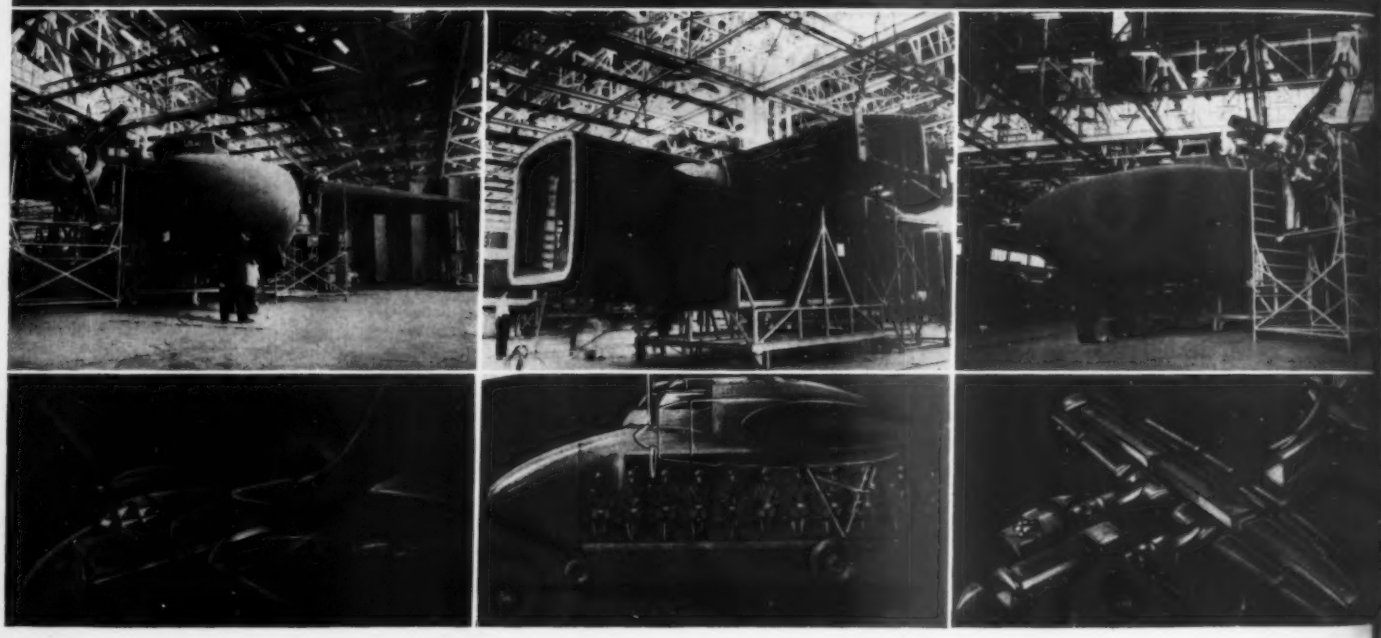
1941 1942

WESTERN AIR, INC.

TWA
The TRANSCONTINENTAL Airline

——MANUFACTURING——

First Pictures of the Curtiss Caravan



On this page are the first pictures the Army has allowed to be released of the new Curtiss Caravan. Top photo shows the ship's high wing. Under the wing is a twin-engined Curtiss AT-9. The center panel of three pictures shows the "box car" shape of the main fuselage section. The panel of three drawings shows, left, the ample cargo space available; center, how paratroops can be accommodated, and right, a production breakdown drawing showing how sections are joined together. Photo on immediate left is a striking front view of the ship.

urtiss 'Caravan', Wooden Military Transport, Nears Flight Test Stage

rst Description New Freighter Released

RTISS-WRIGHT'S C-76 Caravan, an air freighter almost entirely of wood other non-strategic ma- is nearing completion Missouri plant and will undergo flight tests, ac- to a company an- ement on Dec. 13.

r transports of the same type, to carry troops and cargo Air Force, are already in ction, according to Burdette right, vice-president of the and general manager of rplane division.

the first description of the new approved by the War Dept. ublication, Wright said that it sically an all-wood airplane ining molded plywood, lami- and plain lumber. Every fabricating process contribut- to rapid production is being he stated, adding that since of the production of this type ubcontracted to the wood in- its construction has a mum effect on existing aircraft uction.

e Caravan is a high-wing plane, has a 108-ft. wing span, ft. long, and is powered with 1,200-hp. engines. It has a cycle landing gear and is built that its cargo floor is only 36 es from the ground, thus facili- rapid loading and unloading roops or cargo.

e control compartment of the is situated above the forward m of the cargo space and ac- modates a crew of pilot and pilot, although provisions may be made for a radio operator n desired.

e cargo section will accom- te any component part of a e except the fuselage, and ries a cable to which the re- e cords of paratroopers' para- tes may be attached. Each plane be equipped with fittings for ing gliders.

Basically, Wright said, the Cara- n possesses maximum efficiency a low-stalling speed airplane for porting paratroops, airborne forces, field artillery and other itary cargo over short runs of m 600 to 700 miles with fre- nt stops.

It is especially adapted, he ex- ned, for operation over freight s in countries where servicing ities are limited, where land- fields are small and operating ditions are difficult. Possessing a short take-off performance at normal gross weight, it will carry a considerable overload when operated from large airports, he added.

Although the first Caravans are built in Missouri, quantity production will get underway shortly in a newly-erected factory in Kentucky. Cooperating in the production program are three subcontractors: Mengel Company of Kentucky, Baldwin Piano Co. of Ohio, and the Universal Moulded Products Co., of Virginia.

Woods used in production of the Caravan are hickory, spruce, birch, gum, mahogany and Douglas fir. The plywood ranges from three-ply used in the construction of the leading skin edges, to nine-ply employed in the center panel. Wings are of the conventional two-spar box type construction while wing spars are of laminated spruce cap strips, with plywood webs, internal diaphragms and stiffeners. Fuselage is of semi-monocoque construction.

Design of the Caravan was conceived and planned in conjunction with the Air Forces by George A. Page, Jr., and Dean C. Smith, directors of engineering and transport contracts, respectively, for Curtiss-Wright's airplane division. G. J. Brandewiede is in charge of the Kentucky factory.

The Caravan is also being built by Andrew J. Higgins in his Louisiana shipyards.

Loading a Commando: These new pictures are the first to be released showing the actual loading of the Curtiss-Wright Commando. Top photo shows how a crated aviation engine is loaded through the wide door. In the middle picture, smaller material is being loaded into a compartment just back of the wing. In the lower left photo, similar material is being pushed into a forward compartment, while lower right is a striking shot showing the ease with which a tractor can be loaded.

Redesigned Power Relays

The Allied Control Co., New York, N. Y., announces redesign of their BO and BJ Power Relays to require minimum mounting space and to provide wide interchangeability. Models BOB and BJB offer bakelite mounting bases as opposed to screw or shake-proof. The following specs are common to all four models: 12 and 24 volts d-c and 110 volts a-c; single or double pole, double throw; operate at temperatures of —50 degrees C. to +70 degrees C.; resists corrosion beyond spec. Special details of BO and BOB are: non-inductive contact rating, 15 amps; weights, 4 oz. BO or 7 oz. BOB; withstands vibratory motion to 12 G with 2½ watts operating power. Similar details for BJ and BJB are: non-inductive contact rating 5 amperes; weights, 2¼ oz. BJ or 5¼ oz. BJB; withstands vibratory motion to 12 G with 2 watts operating power.

Tinnerman Speed Nut

Tinnerman Products, Inc., 2083 Fulton Rd., Cleveland, O., announces a new Speed Nut for plywood, reported to be the only self-locking nut that can be instantly driven into anchored position. It is designed with two pair of integrally formed attaching legs. When driven into thick plywood, the camlike structure of the attaching legs forces them outward, offering permanent holding through spring-tension grip. A peening action when driven against a backing plate is the result when using the nuts with thin plywood. The weight of this speed nut is given as 3½ pounds per thousand.

Knudsen Predicts

When full American war production is reached, it will amount to twice as much as that of Germany or Japan, Lieut. Gen. William S. Knudsen, Director of Production, War Department, is reported to have predicted at a recent press conference in Boston. He estimated that materials output has already reached about 50% or 60% of peak.

Manufacturing Personnel

Burmood Walsh Marchev Forsythe

William H. Knight, formerly vice president of Electric Household Utilities Corp., Chicago, Ill., has been appointed director of sales and market research at Elastic Stop Nut Corp., Union, N. J.

C. B. "Scotty" Burmood, formerly with the Army's Air Transport Command, and previously chief pilot for China's Chiang Kai-shek, is now with the B. F. Goodrich Co., Akron, Ohio, in charge of flying operations.

M. G. Huntington succeeds **K. D. Smith** as manager of the Washington office of the national sales and service division of the B. F. Goodrich Co., Akron, O. Smith has been assigned new duties in the company's Detroit, Mich. office.

N. W. "Dutch" Forsythe, previously general sales manager, has been elected vice president in charge of sales at Pump Engineering Service Corp., division of Borg-Warner, Cleveland, O.

Alfred Marchev, vice president, has been appointed general manager of the Farmingdale plant of Republic Aviation Corp., Farmingdale, L. I., N. Y.

John L. Bunce has been elected vice president and **Furlonge H. Flynn** secretary, of United Aircraft Service Corp., subsidiary of United Aircraft Corp., East Hartford, Conn. Both Bunce and Flynn have held supervisory and executive positions with United for a number of years.

Frank S. Hubbard, recently quality manager, has been appointed director of purchasing and subcontracts for Brewster Aeronautical Corp., Long Island City, N. Y. This is a newly created position designed to consolidate control over all subcontract items in production of certain planes.

Raycroft Walsh has been designated senior vice-president of United Aircraft Corp., East Hartford, Conn., and **J. Reed Miller** has been elected a vice president. Walsh continues as director of United Aircraft, and as vice president and director of Pratt and Whitney Aircraft Corp. (Missouri). Miller retains his position as general manager of United Aircraft Export Corp., and continues as a vice president and director of Pratt and Whitney Aircraft Corp. (Missouri).

Harold L. Taylor, formerly manager of the Mutual Life Insurance Co. of New York, has been appointed executive vice president of Jordanoff Aviation Co., New York, N. Y. He will be active in special work for the Army and Navy Air Forces.

Philip M. Morgan, president of Morgan Construction Co., Worcester, Mass., and **David G. Baird,** have been elected directors of Wickwire Spencer Steel Co., New York, N. Y.

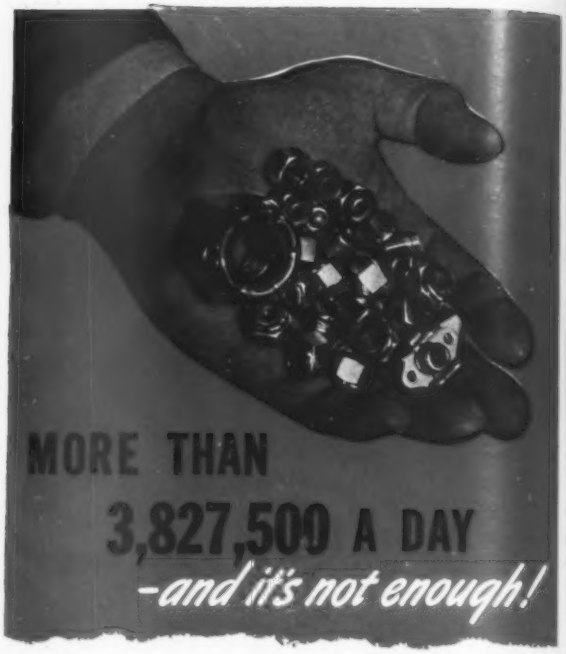
Lester Watson has been elected a director of National Aviation Corp., New York, N. Y.

Gaylord W. Newton has been appointed chief of the power plant unit of Boeing Aircraft Co., Seattle, Wash.

Col. Edward S. Evans, president of Evans Products Co., Detroit, Mich., has been elected to the board of directors of Bowlus Sailplanes, Inc., San Ferando, Cal.

William Reynolds has been appointed advertising and public relations manager of Elastic Stop Nut Corp., Union, N. J.

In inter-company transfers, **Mark G. Veckman,** formerly at Farmingdale, has replaced **Alan J. Pickering** as assistant treasurer at the Indiana division of Republic Aviation Corp., Farmingdale, L. I., N. Y. Pickering has been moved to Farmingdale.



EVERY single day almost four million Elastic Stop Nuts go into war production.

Even at that, and with all our expanded plant, it doesn't fill the demand.

It happens that the most urgent need right now is on aircraft. Every American plane that takes the air has some important part of its structure fastened with these strong, tight-holding nuts. Some types take as many as 35,000 in a single ship.

The reason is: *these nuts stay put under the toughest circumstances.*

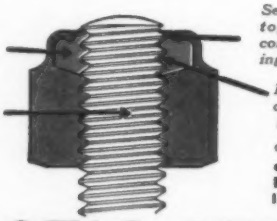
You handle them exactly like regular nuts. They go on fast, lock immediately and automatically.

There's no need of pins, washers or auxiliary locking devices.

Once on, they stay there — never shake loose. But you can take them off and put them back on many times and they won't lose their locking ability.

This is why there are more Elastic Stop Nuts on America's planes than all other lock nuts combined. And why they are also used in important structural applications on guns, naval vessels and other war equipment.

We have made billions of Elastic Stop Nuts and, as far as we know, not one has ever loosened.


Tough, elastic locking element.
Fits standard bolt.
Seals threads at top — prevents corrosion of working threads.
Locking collar cannot harm the bolt threads.

• Write for folder explaining the Elastic Stop self-locking principle.

ELASTIC STOP

SELF-LOCKING NUTS AND AIRCRAFT FITTINGS

ELASTIC STOP NUT CORPORATION

2330 Vauxhall Road, Union, N. J.

WITH THE RED COLLAR—SYMBOL OF EXCELLENCE

The "Northrop group" tells how new U.S. shortcuts work to produce harder-hitting warplanes...faster!

TIME—MAN-HOURS by tens of thousands—go into template making on any new fighting plane design. For every part of the new airplane, there must be many duplicate templates, each shaped and cut and ground to an accuracy of .015 of an inch.

This has been one big reason why it has taken many months to get new airplanes of later, deadlier types rolling from the assembly lines in quantity.

It was a bottleneck which engineers of the Northrop group set out to break. After months of labor they discovered how to make identical duplicate templates by what's now known as "electrolytic etching." Today the new method turns out tens of duplicate templates in the time and with the labor formerly needed to make one.

This new process actually shortens by five precious weeks the stupendous job of putting a typical new-design, harder-hitting warplane into the air! This faster Northrop method of tooling is now being shared with other U.S. airplane makers.

Northrop is also turning over, for other manufacturers to use, the Northrop method of *welding with Helium* which has removed one barrier to the all-welded airplanes of the future.

Other aircraft companies, in turn, are informing the Northrop group of their own new-found secrets. In fact, all U.S. aircraft industry is pooling its techniques—pooling its new devices and discoveries clear down the line from blue-prints to finished planes.

That is teamwork as U.S. plane designers and plane builders understand it. It is the "makings" of victory.

NORTHROP AIRCRAFT, Inc.

Northrop Field, Hawthorne, California

MEMBER AIRCRAFT WAR PRODUCTION COUNCIL, INC.

Aircraft Earnings More Favorable, Hare's Reports

Final enactment of the 1942 Federal tax law has made aircraft earnings prospects "far more favorable . . . than we had anticipated in developing our former estimates. In fact it should increase by over 35%, our former 1942 earnings estimates of these companies . . .," Hare's, Ltd., New York investment firm, announces. Previous estimates appeared in AMERICAN AVIATION for Oct. 15.

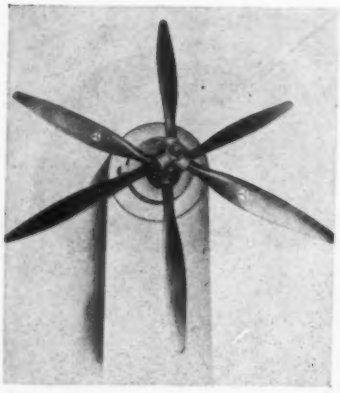
New earnings figures, with post war credit added and share earnings revisions, follow: Boeing, $7,940,000, or $7.37 a share, common; Consolidated, $8,890,000, or $6.90; Curtiss-Wright, $30,312,000, or $3.77, (after adjustment for preferred dividends); Douglas, $15,159,000, or $25.30; Liberty Aircraft, $1,010,000 (does not include equity in undistributed earnings of Autocar), or $5.05; Lockheed, $11,725,500, or $10.90; Martin, $6,763,500, or $6.25; Northrop, $3,044,741, or $7.93; North American, $8,892,000, or $2.60, and United Aircraft, $20,000,000, or $7.55 (after adjustment for preferred dividends).

Enlarging on its previous analysis and forecast of post-war prospects for the aviation industry, Hare's judges that "under peacetime conditions we may expect military sales to be substantially reduced, though policing of the world and preparedness will require continuing purchases by armies and navies, not only of the United States but of all other countries so far unable to obtain planes. To this market will be added a demand for commercial, passenger and cargo planes, privately and corporately owned planes stimulated by the interest of thousands of pilots and the many airfields which this war is developing."

The return of peace, Hare's believes, "should see the very high excess profits tax (designed to take profits out of war) removed, but with high normal and surtaxes remaining. These companies then should be able to net at least 6% on their sales, in other words, at least twice as much as presently. Thus should post-war sales drop to one-quarter of 1942 volume, present earnings should be no more than halved. On this basis these stocks appear to be selling at about four times probable post-war earnings.

"There appears no reason to go more fully into the pros and cons of this subject, in that the above brief data appears to illustrate rather conclusively that currently these stocks have materially overdiscounted post-war conditions and accordingly are very much underpriced.

"While the dividends they are now paying provide a liberal yield, they nevertheless represent but slightly over 25% of current earnings. Thus present dividends may be expected to be well maintained by the stronger and better managed companies under peacetime conditions."



New Prop: Aeroproducts Division of General Motors has just completed a new dual rotation propeller, which it says is the first to be built as a self-contained unit with its own hydraulic system. The prop, equipped with hollow ribbed-steel blades, is of automatic, constant speed, controllable pitch design. It consists of two three-bladed, entirely self-contained units, turning in opposite directions. T. B. Martin was the engineer in charge of the project.

United Aircraft's Shipments Up; Nets $3,460,932

Shipments of United Aircraft Corp., East Hartford, Conn., for quarter ended Sept. 30, 1942 amounted to $130,761,437.02, according to consolidated financial statements recently issued. These shipments, United claims, "were substantially larger than for any quarter in the corporation's history."

Net profit was $3,460,932.08, equal to $1.18 each on 2,656,691 shares of common stock, after provision for dividends on preferred. For the nine months ended Sept. 30, shipments totaled $373,469,755.09. Profit was $10,415,920.10, equal to $3.55 a share.

Despite increases in shipments, United states dollar volume of shipments in the third quarter was less than in the previous period, "due principally to the fact that a higher percentage of the corporation's shipments have been to the U. S. Government at prices lower than to others." However, in the nine month period, dollar volume was more than 80% higher than in the same period of 1941, although net profit was "slightly lower."

Engineering Colleges Form War Research Group

Formation of the Engineering College Research Association by 73 engineering colleges from all parts of the country, headed by Dean W. R. Woolrich of the College of Engineering of the University of Texas, has been announced.

Purpose of the Association is "to cooperate with the war agencies of the government and with war industry in the prosecution and promotion of research needed for the war effort."

Manufacturing Digest

AMERICAN AVIATION Corp., Jamestown, N. Y., held ceremonies Dec. 7 to lay the cornerstone of its new assembly plant, according to the press. Capt. John H. Wright of the Civil Air Patrol supervised cementing of the cornerstone. Commander R. G. Walling, U.S.N., made an address.

BELL AIRCRAFT Corp., Buffalo, N.Y., in recent letter to stockholders, announced an employe's retirement income plan was approved by directors Oct. 26. Plan offers "retirement income based on that portion of all employee's base earnings in excess of $3,000 per year . . ." Retirement age has been set at 60 years, and at first about 800 employes will be included in the arrangement.

GENERAL MOTORS Corp., New York, N.Y., discloses its plants in the United States and Canada are "now producing war materials at a rate of more than $8,000,000 a day."

NASH-KELVINATOR Corp., Detroit, Mich., recently advertised in the daily press that Hamilton Standard propellers made in its plants have been reported by the British Air Commission on "Lancaster bombers . . . (which) have made fiercely opposed operational flights over Saarbruck, Bremen, Duisburg, Frankfurt, Wilhemshaven, Dusseldorf and Essen . . ."

PUMP ENGINEERING SERVICE Corp., division of Borg-Warner, Cleveland, O., announces that as of Dec. 7 its administrative, sales and accounting offices are at Euclid Ave., Cleveland, and the purchasing, production and engineering departments remain 12910 Taft Ave., Cleveland.

SUNCOOK MILLS, New N. Y., reports it was awarded Army-Navy "E" at exercises at its New Hampshire plant 16, which were attended by tinguished political and mi guests.

SWITLIK PARACHUTE Trenton, N.J., was recently sented the Army-Navy Prod Award, in ceremonies at its After this presentation another mony was held to mark the de tion of Switlik's second plant, opened sometime ago.

UNITED AIRCRAFT Corp., Hartford, Conn., in a cooper plan "to eliminate 'bottle-n caused by temporary shortage licensee plants," reports its and Whitney Aircraft division in interchanges with licensees plied them with more than $ in engine parts. Licensee plants Ford Motor Co., Detroit; Buick sion of General Motors at Ch and GM's Chevrolet plant in York; Nash-Kelvinator's plan Wisconsin; Jacobs Aircraft E Co., Pottstown, Pa., and Contin Motors Corp.'s plant in Mich These firms have on occasion versed the process and have sup P & W with $100,000 worth of p company adds.

Financial Briefs

AIRCRAFT ACCESSORIES Corp., Burbank, Cal., has announced its board of directors has voted dividend of 15c per share common, payable Dec. 18 to holders of record Dec. 11.

AMERICAN CENTRAL MANUFACTURING Corp., Connersville, Ind., announces net profit for the nine months ended Aug. 31, 1942, after estimated provision for Federal taxes of $1,106,488, of $475,638, equal to about $1.66 a share, common. In the same period of 1941, net profit was $46,439. Sales for the first nine months of 1942 were $7,885,262.

BENDIX AVIATION Corp., South Bend, Ind., has announced that payment of a 75c dividend was made Dec. 20, 1942 on its common stock, making 1942 payments on that class $3.75.

FAIRCHILD AVIATION Corp., Jamaica, L. I., N. Y., announces net earnings for the nine months ended Sept. 30, 1942 as $669,568.51, after taxes, compared with $666,783.83 in the similar period of 1941, after taxes.

GRUMMAN AIRCRAFT ENGINEERING Corp., Bethpage, L. I., N. Y., has declared a 75c dividend on common stock, raising to $1.50 its 1942 payments on this class.

KELLETT AUTOGIRO Corp., Philadelphia, Pa., reports its board of directors has declared dividend of 10c per share common which was payable Dec. 22 to stockholders of record Dec. 12, 1942.

MINNEAPOLIS-HONEYWELL REGULATOR CO., Minneapolis, Minn., announces through the press that it has negotiated a Regulation V loan of $15,000,000, arranged through a gro local banks. Credit will be availa whole or in part up to Dec. 1 at 2¾% on the funds actually bor

NASH-KELVINATOR Corp., De Mich., reports for fiscal year Sept. 30, 1942 net profit of $3. equal to 89c each on 4,291,202 s outstanding, after all charges fo preciation, reserves and taxes. In 1941, net profit was $4,617,052, or a share. Working capital incr $4,960,104 during the year, and dividends received from subsidia affiliated companies amounted to 792, contrasted with $610,799 in preceding year.

ROHR AIRCRAFT Corp., Chula Cal., discloses that for the year July 31, 1942, net profit was $1,3 equal to $2.92 each on 435,000 sh contrasted with $289,980, or $1.93 on 150,000 shares in the period Aug. 6, 1940, to July 31, 1941.

SQUARE D Co., Detroit, Mich., ports net profit for nine months Sept. 30 as $1,564,577, equal to $ each on 421,360 shares of common, provision for dividends on 5% ferred. This compares with $2,135 or $5.17. In the same period in In the current year, $6,303,594 was served for Federal income and ex profits taxes, and $625,000 for and post-war adjustments.

THOMPSON PRODUCTS, Inc., Cle land, O., has made a year end distri tion of 25c on common, making t payments for 1942 on this class $1.9

Blue Ox

He has sworn to protect its secret with his life. When it is not in his possession it is under double-armed guard, twenty-four hours a day.

He alone carries it from the guard-room to the airplane, and when the mission has been completed, he carries it back to the guard-room. It is his responsibility. It is the Norden Bombsight. . . . He calls it the "Blue Ox."

The bombardier of a Flying Fortress* is the man around whom the great airplane is designed. Back of him and his instrument stretch thousands of man-hours, miles of blueprint, tons of aluminum, barrels of midnight oil.

An American bombardier, a "Blue Ox" and a Boeing Flying Fortress are the most formidable bombing team in the world. One reason is the great stability of the Flying Fortress, which provides a perfect bombing "platform" for "precision bombing." Another is the unequaled high-altitude performance, protective armament and fire-power, which enable the Fortress to reach her objective in daylight, despite flak or interceptors.

"Precision bombing" first began to be effective when the Fortresses bombed their objectives in Europe by daylight—from great altitudes—and with a hitherto unheard-of accuracy. This brand-new military tactic owes much of its effectiveness to Boeing engineers, who worked until they had designed an airplane with the speed, range, stability, load, fire-power and altitude to do the job.

The job still needs to be done, and the Fortresses are doing it every day—on major fighting fronts from Europe to the South Pacific. When the work of the Fortresses is over—when the war is won and the days of peace return—Boeing engineers will find many potential outlets for their skill and talents.

• • •

For in designing and building the Flying Fortress and other advanced aircraft, Boeing engineers and "productioneers" continually acquire new "know-how" in many fields: acoustical, electrical, structural, lubrication, etc. It's the kind of "know-how" that helps to win wars, and will some day help to make peacetime products better and cheaper.

DESIGNERS OF THE FLYING FORTRESS • THE STRATOLINER • PAN AMERICAN CLIPPERS **BOEING**

*THE TERMS "FLYING FORTRESS" AND "STRATOLINER" ARE REGISTERED BOEING TRADE-MARKS

Nelson Blames Output Decrease On Slow Delivery

WPB Chairman Donald M. Nelson in announcing a decrease of 5% in value of warplane production in October from September, gave one reason for the drop as bunched deliveries. This reminded Washington observers of frequent rumors recently that the Army Air Forces' materiel Command has used unusual methods to make its predetermined monthly quota of aircraft deliveries come out accurately. Nelson, however, did not touch on this phase.

The report, Nelson's fifth monthly statement on war production progress, showed that overall production of munitions was up 3% over September, that machine tool output increased 8.3% to a new high, that merchant ship production was down 10% but still ahead of schedule.

Commenting on the drop in planes, Nelson mentioned "special factors affecting deliveries."

"Present estimates of production of aircraft for all of 1942 indicate that the year's output will be more than 3½ times that of the previous years," he said. "Although airplane production was down 5%, measured on the basis of fixed dollar value, this was due mainly to bunching of plane deliveries on Sept. 30, many of which under normal circumstances would have been delivered in October, and the grouping of plane deliveries on November 1, many of which would have been included in October shipments.

"One large manufacturer reported that weather interfered with his meeting schedules. Flying conditions during the end of October were so bad that test flights were out of the question, and 59 of his planes finished in October were not accepted until Nov. 1.

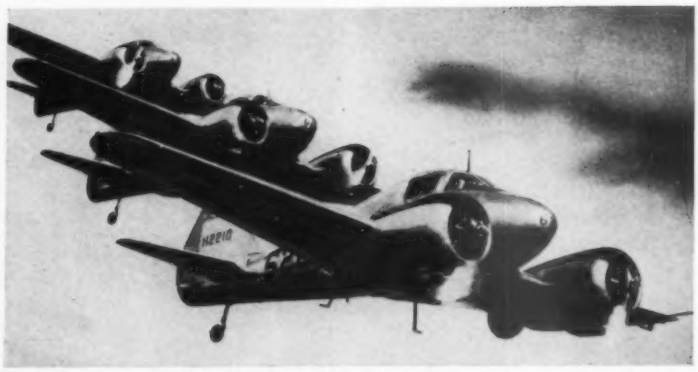
"Had deliveries been spread normally over September, October, and November, October would have shown a sizeable increase in plane production over September.

"Despite the decline in overall airplane production, deliveries of several of the most useful types of planes showed increases. The number of navy fighters that rolled off the production lines increased substantially. Heavy bombers and two-engined fighters also were delivered in larger numbers. Production of one-engine light bombers jumped considerably.

"October engine shipments were up 4% over the number shipped in September, those for tactical planes representing about three-fourths of all shipped, the balance being for trainers.

"Propeller shipments increased 11%. Higher priorities for machine tools for certain types of propellers are expected to increase propeller deliveries still further, and thereby largely correct a condition that threatened to become a serious bottleneck in plane production.

"Difficulty in obtaining fabricated parts for manufacture were reported by most of the manufacturers, alloy steel and aluminum being the chief causes of difficulty. An increasing number of voluntary enlistments in the armed services of skilled workers and engineering technicians also affected production adversely. Women now constitute a very large percentage of all new employes hired in airplane factories; in fact, in October women accounted for virtually the entire net increase in productive workers in the industry."



Precision: An example of how American pilots are taught precision flying is seen in this tight step formation of Curtiss AT-9 Jeeps. The Jeep is a transition trainer.

Defense Plant Corporation Authorizes Expansions of Plants Coast to Coast

Defense Plant Corp., RFC subsidiary, has announced additional authorizations for plant construction and equipment, as follows: increase of contract with Republic Aviation Corp., Farmingdale, L. I., N. Y., for additional facilities in Indiana, to cost more than $2,900,000, which will raise this firm's commitment for this purpose to more than $14,000,000, and increases in contracts with General Motors Corp., Detroit, Mich., (1) for additional equipment for a plant in Michigan, making over-all commitment for this project 51,200,000, and (2) to provide additional facilities in Indiana and Michigan, which will cost in excess of $2,000,000, making total commitment for these projects more than $63,000,000.

Also announced was a similar increase in contract with Boeing Aircraft Co., Seattle, Wash., for additional facilities in Washington, costing more than $1,800,000, making this total commitment over $18,000,000. Boeing just previously had a separate commitment in excess of $500,000 for plant facilities in Washington.

Boeing Aircraft Co., Seattle, Wash., for additional plant facilities in Kansas, had its contract increased in excess of $2,300,000, making its total commitment more than $25,000,000. There were increases in contracts with General Motors Corp., Detroit, Mich., for additional plant facilities in New Jersey, in excess of $2,200,000, making total commitments of more than $9,000,000, and an increase of contract with Republic Aviation Corp., Farmingdale, L. I., N. Y., for additional plant facilities in New York, in excess of $5,000,000, bringing total commitment to more than $16,000,000.

In each case, facilities will be operated by the contracting [illegible] and title will remain with DPC.

Likewise announced were an increase in contract with Ex-C[illegible] Corp., Detroit, Mich., which provide additional facilities Michigan, costing more than $[illegible] 000, resulting in total commit[illegible] for this use greater than $8,00[illegible] increase in contract with W[illegible] Kidde & Co., Inc., New York, N[illegible] for additional facilities at a [illegible] in New Jersey, increasing this [illegible] pany's commitment to more [illegible] $5,000,000 for this purpose, and [illegible] crease with Reynolds Alloys, [illegible] Richmond, Va., for additional [illegible] facilities in Alabama, in excess [illegible] $2,900.000, making this plant's [illegible] commitment more than $19,00[illegible]

Also announced were the fol[illegible] ing authorizations: increase of [illegible] tract with Wright Aeronau[illegible] Corp., Paterson, N. J., for addi[illegible] plant facilities in New Jersey, in [illegible] cess of $8,500,000, raising this [illegible] total commitment to more than [illegible] 000,000; increase of contract [illegible] Curtiss-Wright Corp., Airplane [illegible] vision, Buffalo, N. Y., for addi[illegible] plant facilities in Ohio, in ex[illegible] of $200,000, making a total com[illegible] ment of more than $27,000,000.

Additional authorizations [illegible] nounced are contract with Rohm [illegible] Haas Co., Philadelphia, Pa., for [illegible] struction and equipment of a [illegible] in Pennsylvania, to cost more [illegible] $300,000, and increase in cost [illegible] with Nash-Kelvinator Corp., [illegible] troit, Mich., for additional [illegible] facilities in Wisconsin, to cost in [illegible] cess of $900,000, raising total [illegible] mitment of this firm to more [illegible] $32,000,000.

Likewise approved are execu[illegible] of a contract with Simmonds Ai[illegible] cessories, Inc., New York, N. Y., [illegible] provide facilities in New York [illegible] at a cost of more than $150,000.

Aircraft Wage Shows Increase in New Repo[illegible]

A report issued by the Dep[illegible] ment of Labor reveals aver[illegible] hourly earnings for the aircraft [illegible] parts industries, excluding engi[illegible] were 100.8c in Sept. 1942, up 1[illegible] from August, and 20% more than [illegible] Sept. 1941. But average ho[illegible] worked per week in this classifi[illegible] tion were 47.3 currently, only [illegible] more than in August, and [illegible] 3.1% more than in Sept. 1941.

In the aircraft engines divisi[illegible] average hourly earnings in Se[illegible] 1942 were 125.5c, which was 2[illegible] above the figure for August. [illegible] the other hand, average hou[illegible] worked per week in this industr[illegible] were 47.9, down 1.5% from Augu[illegible]

Exhibiting the same tendencies [illegible] hourly earnings, average week[illegible] earnings for the aircraft and par[illegible] group, excluding engines, wer[illegible] $47.19 in Sept. 1942, an increase [illegible] 2% over August, and 23.8% ove[illegible] September, 1941. Likewise, aircra[illegible] engines workers averaged $60.[illegible] weekly in Sept. 1942, which w[illegible] 1.6% more than in August, an[illegible] 20.6% more than in Sept. 1941.

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Training the Key Men of Tomorrow in Aviation

Foley

(Continued from page 38)

the war effort, splendidly characteristic of American industry, is putting terrific pressure upon the engineering staff of every aircraft manufacturer. Yet we are wondering if by a slight reduction in design engineering staff at the factory, a revolution which would contribute tremendously to the winning of both war and peace, could not be initiated. Possibly we should withdraw some of the talent now applied to specific cargo design for this application.

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We emphasize "design" in foregoing because we can anti the manufacturers' reaction to published suggestion. Lines of thority and organizational ture may dictate that such men be service men and that reports, regardless of their po go to the service department this we disagree in the fear that superiority complex may exi the engineering group as reg the "gripe department."

Any by-passing or dead-e of recommendations or data sulting from such a setup w obviously nullify any gain we hope for. We feel that the good is achieved if men who the design see themselves damning may be the result their work.

Let us not think of such an rangement as immediately ga only for the manufacturers' neers on the scene. We are that the operators' personnel— neers and mechanics—can pick much helpful data, nowhere corded, from the men whose child is the object of their concern. Specific questions problems suggested on the spo the moment by some incident be disposed of on the spot.

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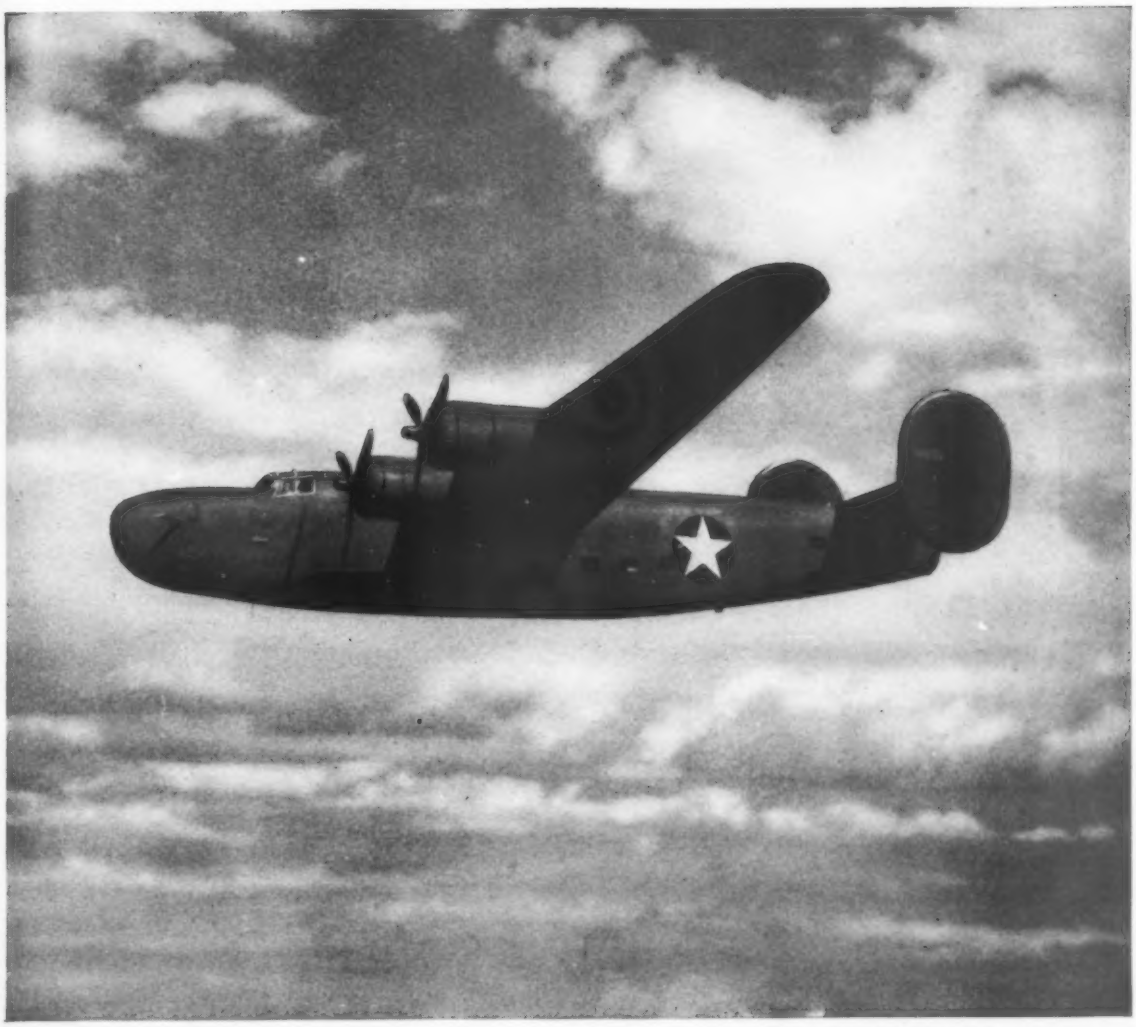

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Illustration: One of Solar's de-scaling acid baths

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Company	Page
Aerosphere	39
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Bardwell & McAlister, Inc.	7
Beech Aircraft Corp.	11
B G Corp.	56
Boeing Airplane Co.	49
Casey Jones School of Aeronautics	52
Celanese Celluloid Corp.	14
Cleveland Pneumatic Tool Co.	12
Consolidated Aircraft Corp.	53
Cornell Maritime Press	52
Curtiss-Wright Corp.—Propeller Div.	19
Darnell Corp., Ltd.	4
Dinkler Hotels Co., Inc.	54
Douglas Aircraft Co.	9
Edo Aircraft Corp.	5
Elastic Stop Nut Corp.	46
Electronic Laboratories, Inc.	25
Fleetwings, Inc.	26-27
Georgia Air Service, Inc.	20
Goodrich Co., B. F.	29-32
Hayes Industries, Inc.	5
Kollsman Instrument Division	13
Lawrence Engineering & Research Corp.	3d Cover
Littelfuse, Inc.	4
Melville Aeronautical Radio School	52
Military Service Publishing Co.	55
Northrop Aircraft, Inc.	47
Pan-American Navigation Service	56
Piper Aircraft Corp.	22
Republic Aviation Corp.	2d Cover
Ryan School of Aeronautics	51
Solar Aircraft Co.	54
Suncook Mills	3
Texas Co.	4th Cover
Transcontinental & Western Air, Inc.	42-43
Vega Aircraft Corp.	41
Vokes, Ltd.	10
Whiting Corp.	6

Wright Praises British Warplanes In Report on Inspection Tour

Although British aviation plants are producing less per man-hour than the U. S. industry, and operating relatively obsolescent equipment, T. P. Wright in a report released by OWI praises British aircraft and methods, and reveals that materials coordination has not been a problem on the other side of the Atlantic.

Wright recently led a group of U. S. aircraft industry executives on a tour through Great Britain.

"Lessons learned in combat are translated immediately into changed airplane design there," Wright said, praising the British Engineering Advisory Committee.

The remainder of the OWI statement follows:

Mr. Wright was impressed with advanced aircraft engineering developments in England. He emphasized the need for "courage in projecting ahead the types of development which may contribute toward winning the war a year or two hence." Of the fighter planes now in production, he praised the Spitfire with its latest Merlin Engine, and the Mosquito. He spoke highly of the Lancaster bombers.

In describing the British production system, Mr. Wright said that output in terms of man-hours is somewhat less than in the United States. The factory setup has been adjusted to the possibility of bombing, which, while lessening danger from enemy planes, reduces output somewhat.

The Mission visited several underground factories, some just getting under way and others in efficient operation. A frequent form of factory organization, it found, was to locate many small plants within a limited area, all of them feeding a few assembly plants. Large scale line production is difficult under these conditions, Mr. Wright said.

A factor limiting British production in terms of man-power is the relative obsolescence of British equipment as compared with our own. Single purpose machines, used in the United States as part of assembly line technique, are less frequent in England.

On the other hand, the working day of aircraft labor is about 15% higher than in the United States, and "it is possible that the intensity of labor effort is somewhat greater," Mr. Wright said. Workers in aircraft plants, he found, "are more aware of the actual meaning of war than are the workers in this country."

He found that the relations between labor and management are excellent. He added that "the management at most factories seemed aggressive and appreciative of the responsibilities which they have."

Further increases in British production, he said, will be the result of greater efficiency rather than of expansion in the labor force employed. He expressed doubt that the British aircraft industry will be able to recruit additional workers to any important extent. At present about 40% of those employed are women.

He said that the "control of ... has been carried out most effe... England."

"At each factory visited," he ... tinued, "I took particular pains ... how the materials situation was ... along, and in not one case did the ... indicate that serious holdups, ... materials shortage, existed."

Mr. Wright pointed out that the ... have an organization known as ... "Engineering Advisory Committee," ... sisting of six company engineers ... the Secretary of the Royal Aero... Society acting as recorder. The ... mittee advises the Minister of ... Production on engineering and ... problems on which he wishes ... review.

Mr. Wright suggested that a ... organization might be formed ... United States. The American ... tee, he said, might well exchange ... formation with the English, par... with respect to long range plans.

Mr. Wright particularly emphasized ... value of exchange missions of this ... There is the obvious advantage ... creasing the technical knowledge ... both, but there is also the advan... herent in obtaining the point of ... held by our Allies, and the ... the problems they confront. ... most important of all is the foster... good relations so necessary in ... out our joint effort.

The Mission made its inspection ... to England Oct. 6 to Nov. ... members, other than Mr. Wright ... W. K. Ebel, Glenn L. Martin Co.; ... Herreshoff, Chrysler Corp.; P. G. ... son, Boeing Aircraft Co.; I. M. ... Consolidated Aircraft Corp.; ... Marcus, Bendix Aviation Corp.; ... Stewart, Hamilton Standard Pro... J. Carlton Ward, Jr., Fairchild Air... and C. D. Welty, Aluminum Co... of America.

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The complaint charges viol... of the Sherman anti-trust law... cusing the defendants of cons... since 1935 to divide world ma... and restrain trade by price-f... through international agree... with firms in Germany, Japan, ... England and France, relative to ... craft accessories and instrume...

Defendants are the company, ... cent Bendix, former presi... Charles Marcus, former vice p... dent, and Francis A. Stanton, p... counsel.

E. R. Breech, Bendix presi... said Nov. 20 that the Justice De... ment had conducted an investig... before a Federal Grand Jury in ... York from June 1941 to March ... but no indictment was returned ... the department then threatened ... civil suit.

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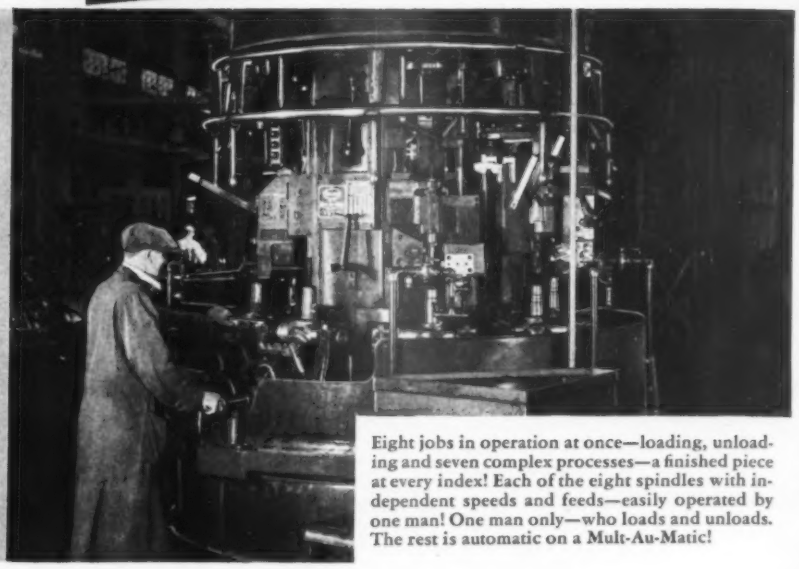

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